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ABSTRACT

This document contains formal papers, keynote speeches and selected panel presentations delivered at a conference that addressed the issues, responsibilities and challenges faced by institutional researchers now and in the future. Papers are as follows: "Attrition and C.I.R.P. Correlates of a Measure of Self-Confidence Regarding Transition into College" (Robert W. Baker); "An Information Infrastructure for Enrollment Management Tracking and Understanding Your Students" (Craig A. Clagett, Helen S. Kerr); "The Special Relationship and Higher Education: How the UK and USA Systems Might Learn More from Each Other" (Peter Davies, John Maguire); "Using Diverse Reference Points to Inform Decision Making" (Robert C. Froh); "Interdisciplinary Approach to Science Education" (Gin K. Gee, Marion Walker); "Management Tools for Faculty Salary Decisions: Comparisons and Simulations" (M. Patricia Gildea); "Public Accountability and Development (Remedial) Education" (Patricia N. Haeuser); "Increasing Institutional Research Effectiveness and Productivity: Findings from a National Survey" (Robin B. Huntington, Craig A. Clagett); "Re-Examining the Role of an Institutional Research Office in a Changing Technological, Fiscal, and Political Climate" (Jean Morlock Kibler); "Multi-method Design in Assessing Campus Culture" (Arthur Kramer); "Perceptions of College Experience and Goal Achievement among Nonpersisters and Graduates" (Deborah Lessne); "Development of an Information System for Tracking Transfer Students" (Judith A. McCarroll); "Why Do Some Students Choose To Work While Others Do Not?" (Yuko Mulugetta, Dennis Chavez); "Estimating Numbers of Students with Disabilities, Their Needs, and Ratings of Facilities and Services" (Marian N. Steinberg); "A Simple Computer Model for Prioritizing and Scheduling School Visits" (David R. Wier, Jr.); "Status, Role, Experience, and Credentials as Factors Influencing Salaries of Professional Academic Librarians" (Marie E. Zeglen); "Marketing Higher Education in a Changing Society: Reframing Our Questions for the 1990s" (Elizabeth G. Cook); "'Fantasies' and Forecasts for the Year 2010" (Peter Davies, Sherry H. Penney); and "Demand Driven Volunteer Institutional Research at a Small Liberal Arts University" (Ann Preston, Kathleen Murphy, Robert Murphy, Joan Biter, Carol Wittmeyer). Contains an index and members list. (GLR)

ED346779

North East Association for Institutional Research

18th Annual Conference

Institutional Research In a Changing Society

Royal Sonesta Hotel
Cambridge, Massachusetts

November 16 - 19, 1991

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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President's Message

The 1991 annual conference of the North East Association for Institutional Research was innovative and enlightening and in every way a success. Early reviews of the conference evaluations conducted by Ellen Armstrong Kanarek indicate this conference received the highest overall ratings of any conference in recent memory.

The credit for the success of this conference goes first to the presenters and program participants whose contributed papers, panel discussions, demonstrations, workshares and workshops provided the substance. Special thanks and credit are also due the excellent organization and planning of Mike Maguire, Program Chair, and Susan Forti, Chair for Local Arrangements. From the outset their intent was to host a conference that was innovative and informative, even provocative, in addressing the issues, responsibilities and challenges we face as institutional researchers. To their credit and to the credit of all who participated, this conference succeeded.

The conference theme, *Institutional Research in a Changing Society*, was explored from multiple perspectives. Monday's General Session presentation by guest speaker, Elizabeth Graham Cook, Executive Director of the Ad Club of Boston, focused on the subject of Marketing Higher Education in a Changing Society. Tuesday's General Session panel of CEO's explored "Fantasies and Forecasts for the Year 2010"; the panel included Peter Davies (Staff College, Bristol, England); Richard Kraus (Cape Cod Community College); Margaret McKenna (Lesley College), and Sherry Penney (University of Massachusetts, Boston). In addition numerous panel and table topic discussions and paper presentations ran the gambit from discussing research on student sexuality, to revisiting the new agenda for IR, to comparing cost containment strategies.

The somewhat smaller size of these Proceedings relative to those of prior conferences is a tribute to the increased variety of program formats employed this year. From increased numbers of workshops and panels to workshares and table topic discussions, this conference was very much a participative event. For this reason the Steering Committee and the Publications Chair, Karen Bauer, agreed that written comments from panel presenters who offered their papers would be included as important reference documents in this publication. The hands-on participative agenda was further promoted in the fun-filled exploration of the Boston Museum of Science, which proved a very engaging and memorable Sunday evening social event.

Thanks to Tom Flaherty and Linda Suskie for their exemplary financial guidance. As the organization has grown so has the complexity of the Treasurer's tasks. Linda's term as Treasurer expired the end of this past June at which point Tom picked up the reins for the beginning of this two-year term. The organization has been well served by the excellent work of these two, whose diligent efforts have kept us in good financial standing. Thanks as well to Jennifer Brown for her excellent service as Secretary, not only for the timeliness and improved format of the newsletter, but for the research and compilation effort that went into the Policies and Procedures Manual.

Congratulations to Dawn Terkla on her election to the position of President-Elect, to Mark Ekstein on his election to Secretary, and to Jennifer Brown, Craig Clagett, Al Lefebvre, and Marian Pagano on their election to the Steering Committee. Dawn is an experienced and prolific IR professional with a demonstrated track record in providing excellent guidance to the organization and valued counsel to yours truly. Similarly, Mark, Jennifer, and Al have extensive experience in IR which, coupled with Marian's creative talent and fresh insight, constitute a rich variety of experiences and valued perspectives on the Steering Committee. They are sure to serve the organization well in the years ahead.

Finally, a very special and sincere thank you to Mike Middaugh for his continued advice and guidance throughout this transitional year. Jennifer Presley's term as President was interrupted by her departure for the Midwest, and Mike and I have shared the responsibilities for the remainder of her term. Mike has agreed to stay on as Past-President and will again chair the nominating committee for elections to the 1992-93 Steering Committee. We are all much indebted to Mike for his exceptional dedication and service to the organization.

Thanks to all of you for your confidence and cooperation. You, the membership, make NEAIR the very special organization that it is. Given the troubled times we face in higher education today, it is a great comfort to know there exists a friendly network of professionals just a phone call or BITNET message away, ready to listen and advise.

It is not possible here to acknowledge by name the many, many individuals who helped with program, arrangements, presentations, and publications. But it is the efforts of these willing volunteers that make NEAIR the special organization that it is. To you the membership of NEAIR, with acknowledgement to all who worked so diligently to make the 1991 conference a success, I commend these Proceedings.

Larry W. Metzger
President NEAIR, 1991

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*NOTE: Keynote and panel presentations included herein were presented and offered to conference participants. These papers reflect only a portion of panel discussions, as other panelists were unable to submit transcripts. Although panel papers have not been a usual part of the Proceedings, they are included here as additional reference for NEAIR members.

1991 NEAIR CONFERENCE PROGRAM

SATURDAY, November 16

6:00pm - 8:00pm — **RECEPTION for Early Arrivers - Skyline Rooms (A - E)**

SUNDAY, November 17

8:30am - 4:30pm — **REGISTRATION - Ballroom Foyer**

Newcomers to Institutional Research

Michael F. Middaugh
Director of Institutional Research and Planning
University of Delaware

9:00am - 4:30pm

WORKSHOP

Skyline A

This workshop is designed to give new practitioners in institutional research a hands-on approach to getting started in the field. Using *The NEAIR Monograph for Newcomers to Institutional Research,* workshop participants will walk through a series of exercises designed to address such issues as: How to ensure data integrity; developing factbooks and reports that are read and used by college presidents; defining critical issues for institutional research at your college or university; identifying sources of data; conducting survey research; using personal computers and commercial software in institutional research and strategic planning; and developing forecasting models. The workshop will also address the political pitfalls in institutional research, and will discuss how the new practitioner can effectively link his/her office with the strategic planning/decision making center at his/her institution.

Institutional Planning: Principles and Applications

John A. Dunn, Jr.
Executive Director
Center for Planning Information
Tufts University

9:00am - 4:30pm

WORKSHOP

Skyline C

Institutional researchers are often called on to support or manage planning processes. Textbook approaches often ignore real institutional differences. Attendees will be asked to describe the central planning questions(s) and constraints at their institutions; we will then focus on underlying principles and their application to these situations. Participants will receive copies of the SCUP Guide for New Planners and Schmidtlein and Milton's Adapting Strategic Planning to Campus Realities.

1991 NEAIR CONFERENCE PROGRAM

SUNDAY, November 17

Introductory Statistics for Institutional Research

Marian Pagano
Research Analyst
Office of Institutional Research
Tufts University

9:00am - 12:00 noon

WORKSHOP

Skyline D

The very basic in statistics will be covered in a way useful as an introduction or as a refresher to statistics. Data from an actual IR project will be used for illustration. Descriptive statistics, sampling and probability theory (including the famous M&M exercise), and three inferential methods (chi square, t-test, and Pearson's r) will be covered. Participants will receive a notebook detailing the materials covered.

Principles of Financial Management and Analysis for Institutional Researchers

James P. Honan
Associate Director
Programs and
Professional Evaluation
Harvard University

9:00am - 12:00 noon

WORKSHOP

Skyline E

This workshop is designed for individuals with little or no knowledge of nonprofit financial management and accounting terms, concepts, and analytic techniques. It will provide institutional research professionals with a broad understanding of the development and use of financial information in colleges and universities. Among the topics which will be discussed are fund accounting, chart of accounts, basis of accounting, preparation and interpretation of financial statements, ratio analysis, and budgeting formats. Selected readings, a specific case study on financial management and analysis in higher education, and a glossary of terms in nonprofit financial management will be utilized. The workshop will not attempt to produce accountants or budget officers. It is intended to improve management and analytic skills by making participants better consumers of financial data.

10:15am - 10:30am **COFFEE BREAK**

Computer Graphics Workshop

Audrey Adam
Research Analyst
Institutional Research
Tufts University

10:00am - 1:00pm

WORKSHOP

Tufts University
Mark Learning Center

A hands-on tutorial using the CHART option of LOTUS Freelance for DOS. Discussion will cover how to visualize data; what we need to know to create good graphs; and the characteristics of good design. A workbook and handouts will be distributed to attendees. While the workshop will be particularly useful for users of Freelance, non-users will also benefit from the discussion of conceptual and data/image management issues. **Limited to 12 participants. Van to Tufts will pick up participants at 9:30am in the Sonesta Lobby.**

1991 NEAIR CONFERENCE PROGRAM

SUNDAY, November 17

Enrollment Management Research

Barbara Rudy
Boston University

1:30pm - 4:30pm

WORKSHOP

Skyline E

This workshop is designed for individuals with some IR experience but little or no experience with enrollment management research. Enrollment management is the attempt to influence the characteristics and the size of enrolled student bodies through recruitment and retention strategies. This workshop will provide an overview of the current methods of conducting market research, review the factors that shape college choice, and review student attrition research as a basis for designing student retention studies. We will discuss research and decision support systems needed for marketing, forecasting, program planning, and evaluation.

2:45pm - 3:00pm — **COFFEE BREAK**

Computerized Data Analysis for Institutional Researchers

Mary Ann Coughlin
Research Analyst
Office of Institutional Research
Smith College
Marian Pagano
Researcher/Analyst
Tufts University

1:30pm - 4:30pm

WORKSHOP

Tufts University
Mark Learning Center

This workshop will provide the participants with an overview of the basic applications of the SPSS statistical software to a variety of functions performed in an institutional research office. Instruction will focus on the successful application of the SPSS software in an IR setting by providing hands-on experience utilizing the software package with specific examples from recent projects. The workshop is targeted for introductory to intermediate level computer users and assumes an underlying knowledge of statistics and institutional research applications. **Limited to 12 participants. Van will pick up participants at 1:00pm in the Sonesta lobby.**

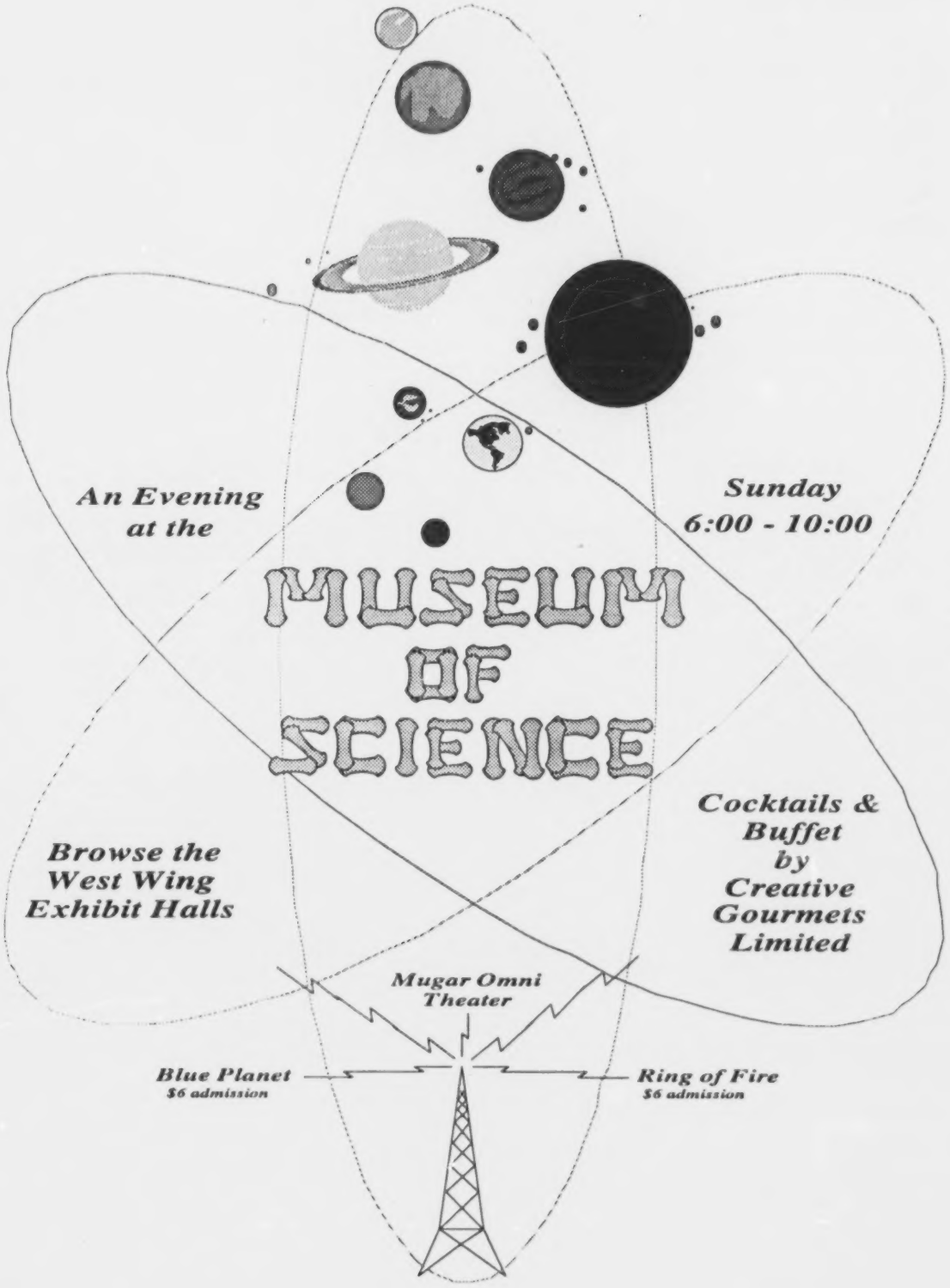
6:00pm - 10:00pm — **SOCIAL HOUR/DINNER/ENTERTAINMENT**
MUSEUM OF SCIENCE (badges must be worn)

2:40 - 3:20	The New Agenda Revisited (continued) **Skyline A**	Interdisciplinary Approach to Science Education **Skyline B**	School Visits: Still an Effective Recruitment Tool? **Skyline C**	A Multi-Method Approach to Assessing Campus Culture **Skyline D**	Using SPSS TABLES to Create a Student Profile **Skyline E**
3:20 - 3:50	**BREAK**				
3:50 - 4:30	The Chelsea Project at Boston University **Skyline A**	Paradise with Paradox: An IR Director's Dream Come True **Skyline B**	Management Tools for Faculty Salary Decisions: Comparisons and Simulations **Skyline C**	Development of Information Systems for Tracking Transfer Students **Skyline D**	Re-Examining the Role of an Institutional Research Office in a Changing Technological, Fiscal and Political Climate **Skyline E**
5:00 - 5:30	**NEAIR FUN RUN/WALK - meet in hotel lobby**				
6:00 - 7:30	**NEWCOMER - OLDCOMER RECEPTION - Skyline Rooms (A - E)**				
T U E S D A Y, November 19					
7:30 - 9:00	**CONTINENTAL BREAKFAST - Grand Ballroom**				
Table Topics 7:45 - 8:45 Grand Ballroom	**A.** Computer-Generated Reports for Decision Making by Academic Departments	**B.** Institutional Workload: Overcoming the Obstacles to Presenting a Useable Analysis	**C.** Surviving Reaccreditation	**D.** Institutional Research on Student Sexuality	**E.** The Uses of Telephone Surveys in Institutional Research	**F.** Current Activities in Student Assesessment
	G. "Oh Say Can You See: Reflections on the Politics of Diversity, Demographics and Accreditation in Higher Education"	**H.** Minority Pool for State System Universities	**I.** Retention Studies	**J.** Late Breaking Topics	**K.** Conference Evaluation (Invited Interview)	**L.** Conference Evaluation (Invited Interview)
9:00 - 10:15	**GENERAL SESSION - Grand Ballroom**				
10:15 - 12:00	**Informal Computer Demonstration and Survey Fair -Ballroom Foyer**				
10:30 - 11:10	Cost Containment **Skyline A**	Course Demand Characteristics: Analyses Based on Student Registration Activity **Skyline B**	Making a Significant Difference with Institutional Research: Findings from a National Survey **Skyline C**	The Use of Structured Interviews in a Qualitative Study of Admissions Publications **Skyline D**	A Simple Computer Model for Prioritizing and Scheduling School Visits **Skyline E**
11:10 - 11:20	**BREAK**				
11:20 - 12:00	Cost Containment (continued) **Skyline A**	Attrition and C.I.R.P. Correlates of a Measure of Self-Confidence Regarding Transition into College **Skyline B**	Degrees Granted as an Assessment Measurement for Community Colleges: A Misleading Indicator **Skyline C**	Estimating Numbers of Students with Disabilities, Their Needs and Ratings of Facilities and Services **Skyline D**	Understanding and Using the Admitted Student Questionnaire (ASQ) **Skyline E**
12:00 - 3:00	**STEERING COMMITTEE MEETING - University A**				
1:00 - 4:00	Introductory Statistics for Institutional Research **Skyline A**		Principles of Financial Management and Analysis for Institutional Researchers **Skyline C**		

PROGRAM AT A GLANCE

Northeast Association for Institutional Research — Cambridge, Massachusetts

SATURDAY, November 16					
6:00 - 8:00	**RECEPTION for Early Arrivers - Skyline Rooms (A - E)**				
SUNDAY, November 17					
8:00 - 4:30	**REGISTRATION - Ballroom Foyer**				
9:00 - 12:00	Newcomers to Institutional Research (9:00 - 4:30) **Skyline A**	Introductory Statistics for Institutional Research (9:00 - 12:00) **Skyline D**	Principles of Financial Management and Analysis for Institutional Researchers (9:00 - 12:00) **Skyline E**		Institutional Planning: Principles and Applications (9:00 - 4:30) **Skyline C**
10:00 - 1:00		Computer Graphics (10:00 - 1:00) **Mark Learning Center, Tufts University**			
1:30 - 4:30		Enrollment Management Research (1:30 - 4:30) **Skyline E**	Computerized Data Analysis for Institutional Researchers (1:30 - 4:30) **Mark Learning Center, Tufts University**		
6:00 - 10:00	**SOCIAL HOUR/DINNER/ENTERTAINMENT - Museum of Science**				
MONDAY, November 18					
7:30 - 12:00	**REGISTRATION - Ballroom Foyer**				
7:30 - 9:00	**CONTINENTAL BREAKFAST - Grand Ballroom**				
7:45 - 8:45	SIG - Higher Education Data Sharing Consortium (HEDS) **Skyline A**	SIG - Catholic Colleges and Universities **Skyline B**	SIG - Public Universities Information Exchange **Skyline C**	SIG - Pennsylvania State System of Higher Education **Skyline D**	SIG - Two-Year Colleges **Skyline E**
9:00 - 10:00	**GENERAL SESSION - Grand Ballroom**				
10:00 - 10:20	**BREAK**				
10:20 - 11:00	Demand - Driven Volunteer Institutional Research at a Small Liberal Arts University **Skyline A**	The "Special Relationship" and Higher Education: How the UK and USA Systems Might Learn More from Each Other **Skyline B**	Why Do Some Students Choose to Work While Others Do Not? **Skyline C**	Researching Sexual Harassment and Date Rape on Campus **Skyline D**	JMP Statistical Visualization Software for the Macintosh **Skyline E**
11:10 - 11:50		The CFAE "User's Manual": How To See What You're Good At **Skyline B**	Data Privacy **Skyline C**	An Information Infrastructure for Enrollment Management: Tracking and Understanding Your Students **Skyline D**	One Macintosh Environment at Boston University **Skyline E**
12:00 - 1:30	**LUNCH/BUSINESS MEETING - Grand Ballroom**				
1:30 - 5:00	**Informal Computer Demonstration and Survey Fair - Ballroom Foyer**				
1:50 - 2:30	The New Agenda Revisited **Skyline A**	Using Diverse Reference Points to Inform Decision Making **Skyline B**	Perceptions of College Experience and Goal Achievement Among Nonpersisters and Graduates **Skyline C**	Public Accountability and Development (Remedial) Education **Skyline D**	Status, Role, Experience, and Credentials as Factors Influencing Salaries of Professional Academic Librarians **Skyline E**


An Evening
at the
Sunday
6:00 - 10:00
MUSEUM
OF
SCIENCE
Browse the
West Wing
Exhibit Halls
Cocktails &
Buffet
by
Creative
Gourmets
Limited
Mugar Omni
Theater
Blue Planet
$6 admission
Ring of Fire
$6 admission

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

7:30am - 12:00 noon — **REGISTRATION - Ballroom Foyer**

7:30am - 9:00am — **CONTINENTAL BREAKFAST - Grand Ballroom**

Higher Education Data Sharing Consortium (HEDS)

7:45am - 8:45am
Special Interest Group
Skyline A

Kimberley Dolphin, Director
HEDS Consortium, Tufts University

This session will provide an informal update for HEDS members and others interested in sharing institutional data. The primary focus will be on cost containment and staffing issues.

Catholic Colleges and Universities

7:45am - 8:45am
Special Interest Group
Skyline B

Stuart L. Rich, Director
Institutional Research, Georgetown University

Representatives of Catholic colleges and universities are invited to share experiences and common concerns and to plan activities of mutual benefit.

Public Universities Information Exchange

7:45am - 8:45am
Special Interest Group
Skyline C

John A. Dunn, Jr., Executive Director
Center for Planning Information, Tufts University

An opportunity for members of the Exchange and others interested in data exchange activities in public institutions to discuss current plans, with a focus on studies of institutional productivity, staffing, and cost reduction.

Pennsylvania State System of Higher Education

7:45am - 8:45am
Special Interest Group
Skyline D

Maree R. Glanville, Director
Institutional Research, Shippensburg University

Institutional researchers from the State System in Pennsylvania will meet to discuss current issues and concerns.

Two-Year Colleges

7:45am - 8:45am
Special Interest Group
Skyline E

Patricia Haeuser, Director
Planning and Research, Anne Arundel Community College

This SIG is intended for individuals dealing or concerned with the IR function in two-year institutions. Problems, concerns, and issues will be discussed in an informal setting.

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

9:00am - 10:00am

GENERAL SESSION - Grand Ballroom
Elizabeth Graham Cook,
Executive Director, Ad Club of Boston
"Marketing Higher Education in a Changing Society"

10:00am - 10:20am — **COFFEE BREAK - Sponsored by Scanning Products, Inc.**

Demand-Driven Volunteer Institutional Research at a Small Liberal Arts University

St. Bonaventure University

10:20am - 11:50am

PANEL

Skyline A

John Biter, Chair of Institutional Research
Kathy Murphy, Assistant Professor of Management
Robert Murphy, Asst. to President for Planning and Research
Ann Preston, Assistant Professor of Mass Communication
Michael Russel, Assistant Professor of Marketing
Carol Wittmeyer, Assistant Professor of Education

This panel will review the origins, evolution and structure of IR at St. Bonaventure University, providing a model of a low-cost sustained research program. Initially the product of professors' individual curiosity, IR projects originate in response to requests from administrators and now emphasize marketing concerns. Faculty design and conduct the research on a volunteer basis.

The "Special Relationship" and Higher Education: How the UK and USA Systems Might Learn More from Each Other

Peter Davies, Staff Tutor
The Staff College, Blagdon, UK

10:20am - 11:00am

PAPER

Skyline B

American educators still have much to offer UK higher education particularly in areas such as credit accumulation and transfer. Experience and expertise can be beneficially imported as well as exported. UK developments in fields such as job-related training and assessment could provide useful lessons for US institutions.

Moderator: Michael McGuire

Why Do Some Students Choose to Work While Others Do Not?

Yuko Mulugetta
Research Associate for the
Office of Financial Aid and
Student Employment
Dennis Chavez
Program Director for
Student Employment
Cornell University

10:20am - 11:00am

PAPER

Skyline C

The survey has revealed that a financially aided student's decision to work during the academic year is significantly affected by his/her perception of the educational value of employment and work experience in high school. However, GPA, parental income, and minority status were not found to be important factors.

Moderator: Robert Froh

MONDAY, November 18

Researching Sexual Harassment and Date Rape on Campus

Dawn Geronimo Terkla
Director
Institutional Research
Marian Pagano
Audrey Adam
Research Analysts
Tufts University

10:20am - 11:00am

TOPICAL CASE STUDY

Skyline D

This workshare presentation is a topical case study on a work in progress at Tufts University. The process of putting together a campus research project on sexual harassment and date rape will be discussed, as opposed to actual results. The handling of the data and coordination between offices will be emphasized.

Moderator: Patricia Gildea

JMP Statistical Visualization Software for the Macintosh

Jim Ferguson
Assistant Director
Institutional Research
Hamilton College

10:20am - 11:00am

DEMONSTRATION

Skyline E

JMP is a statistical visualization product for the Macintosh from SAS Institute. It includes a spreadsheet for viewing, editing, and transforming data. Graphics features include histograms, scatterplots, 3-D interactive data rotation. The best feature of the program is its intuitiveness and ease of use, enabling both the statistical sophisticate and the statistical novice to analyze data without the hassles of programming.

Moderator: Darryl Bullock

The CFAE "User's Manual": How To See What You're Good At

John A. Dunn, Jr.
Executive Director
Center for Planning Information
Tufts University
Nina Mayer
Development Planner
Tufts University

11:10am - 11:50am

DEMONSTRATION

Skyline B

The Council for Aid to Education (CFAE) has collected fund-raising data from over 1,000 institutions for over 3 decades, but this rich database is underutilized. The panelists describe a "user's manual" to help development officers and researchers identify fund-raising strengths and opportunities, through trend and peer-group analyses.

Moderator: Jennifer Wilton

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

Data Privacy

Peter T. Farago
Director
Institutional Research &
Planning Studies
Anita Dubey
Research Analyst
Office of the Dean of Faculty
Bentley College

11:10am - 11:50am

TOPICAL CASE STUDY

Skyline C

As centralized computer systems expand, opportunity for accessing data also increases. Just because the capability exists, does that mean access should be granted? What are the implications of providing data in electronic versus printed form? The workshare will deal with these and related issues.

Moderator: Jean Kibler

An Information Infrastructure for Enrollment Management: Tracking and Understanding Your Students

Craig A. Clagett
Director
Institutional Research & Analysis
Prince George's Comm. College
Helen S. Kerr
Research Analyst
Washington College

11:10am - 11:50am

PAPER

Skyline D

Two kinds of information are needed for successful enrollment management: indicators for monitoring the performance of the enrollment management plan, and policy analyses to inform enrollment management strategies. An integrated approach to providing this information will be presented. Its use at both liberal arts and community colleges will be discussed.

Moderator: Dale Trusheim

One Macintosh Environment at Boston University

Office of Analytic Studies
Boston University

11:10am - 11:50am

DEMONSTRATION

Skyline E

A panel of Boston University staff members will explain and demonstrate the utilization of Mac's within the Office of Analytical Services. The presentation will touch upon Mac-to-Mac networking and file storage, and use of various software packages in office and project management, data management, and report production. Discussions will include, but not be limited to, use of software packages such as Excel, FileMaker, PageMaker, Persuasion, and McDraw.

Moderator: David Weir

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

12:00 noon - 1:30pm — **LUNCH/BUSINESS MEETING - Grand Ballroom**

1:30pm - 5:00pm — **Informal Computer Demonstration and Survey Fair**

Ballroom Foyer

IBM AT and MAC II computers available for informal demonstrations. And, a sample of survey instruments from other Institutional Research offices for your review.

The New Agenda Revisited

Marian Pagano
Research Analyst
Institutional Research
Tufts University

John Biter, Chair of Institutional Research and Professor of Sociology, St. Bonaventure University
Arthur Kramer, Director of Institutional Research, Passaic County Community College
Ann Preston, Assistant Professor of Mass Communication, St. Bonaventure University

1:50pm - 3:20pm

PANEL

Skyline A

Last year a group of newer NEAIR members presented a "new agenda" for the association. That agenda will be reviewed in terms of our progress to date. Additional newcomers will also present their ideas for a new agenda. General topics will include diversity and equity in the profession.

Using Diverse Reference Points to Inform Decision Making

Robert C. Froh
Peter J. Gray
Office of Evaluation and Research
Center for Instructional Development
Syracuse University

1:50pm - 2:30pm

PAPER

Skyline B

As part of the Syracuse Freshmen Study three complimentary methods, namely surveying, focus group interviews, and institutional data analysis were used in combination to identify the experiences and perceptions of students on our culturally diverse campus. These strategies also helped incorporate input from staff and administrators with diverse viewpoints and backgrounds. This presentation will use examples of research and reporting processes, and policy and program proposals of the Syracuse Freshmen Study over the past three years to highlight the benefits of using diverse reference points to inform decision making.

Moderator: Maree Glanville

MONDAY, November 18

Perceptions of College Experience and Goal Achievement Among Nonpersisters and Graduates

Deborah Lessne
Research Analyst
Board of Trustees
Community-Technical Colleges of Connecticut

1:50pm - 2:30pm

PAPER

Skyline C

Seven Connecticut Community-Technical Colleges surveyed non-returning students concerning achievement of their educational goals and aspects of the Colleges with which they were satisfied/dissatisfied. Responses were compared to responses graduates had made on a similar survey. Subgroups of nonpersisters based on initial goals and outcomes were also compared.

Moderator: John Jacobsen

Public Accountability and Developmental (Remedial) Education

Patricia Haeuser
Director
Planning and Research
Anne Arundel Comm. College

1:50pm - 2:30pm

PAPER

Skyline D

When faced with budget deficits, state and local governments often resort to questioning the fiscal resources spent on programs that are not popular or prestigious. This paper will provide the rationale and analyses that could be used to position an institution (in this case, a community college,) to respond to an attack on resources associated with developmental or remedial education.

Moderator: June Zeff

Status, Role, Experience, and Credentials as Factors Influencing Salaries of Professional Academic Librarians

Marie E. Zeglen
Director
Policy Analysis
University System of
New Hampshire

Presenter: Edward Schmidt

1:50pm - 2:30pm

PAPER

Skyline E

Existing studies review librarian salaries by either title, functional role, or experience. Rarely are questions of academic credentials or status considered. This presentation summarizes a 1991 study of salaries at 27 academic libraries by function, gender, faculty status, rank, tenure, professional experience, and degrees. Regional data will also be presented.

Moderator: Henry Shein

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

Interdisciplinary Approach to Science Education

Gin K. Gee
Professor of Biology
Biology/Chemistry Division
Marion Walker
Research Analyst
Educational Research
Corning Community College

2:40pm - 3:20pm

PAPER

Skyline B

A successful integrated science course for nursing students unifies biology, chemistry, anatomy, physiology and microbiology into a single two-semester course. This paper describes the course, presents evidence of the course's success, shows the support of the Nursing Division, and the value of it to the students who participated.

Moderator: Linda Suskie

School Visits: Still an Effective Recruitment Tool?

David R. Weir, Jr.
Associate Director
Admissions
Franklin Pierce College

2:40pm - 3:20pm

PAPER

Skyline C

Has mass marketing made the high school visit unimportant as a recruitment tool? Or does the personal quality of the high school visit still have unique advantages? Correlation analyses of ten years of Franklin Pierce empirical data, as well as theoretical considerations will form the basis of the discussion of this issue.

Moderator: Marian Steinberg

A Multi-Method Approach to Assessing Campus Culture

Arthur Kramer
Director
Institutional Research
Passaic County
Community College

2:40pm - 3:20pm

PAPER

Skyline D

The study was a multi-method approach to assess the culture of an urban community college. By combining the qualitative methodologies of one-to-one open-ended interviews and focus groups with a multi-dimensionally scaled open-ended survey, it was found that there was informality and student, faculty and administrative subcultures that were tightly intertwined.

Moderator: Craig Clagett

MONDAY, November 18

Using SPSS TABLES to Create a Student Profile

Karen Bauer
Research Analyst
Dale Trusheim
Associate Director
Institutional Research & Planning
The University of Delaware

2:40pm - 3:20pm

DEMONSTRATION

Skyline E

Using the TABLES procedure in SPSS, a Student Profile was created which shows student enrollment data by class level, sex, ethnicity, age, and major. This profile is updated biannually and distributed to campus officials who may use the profile to gain an understanding of current enrollments and to obtain annual report information.

Moderator: James Ritchie

3:20pm - 3:50pm — **COFFEE BREAK - Sponsored by Lotus Development Corp.**

The Chelsea Project at Boston University

Theodore G. Sharp
Asst. Dean for Special Programs
BU School of Education
Chairman of the Management Team for the BU-Chelsea Partnership

3:50pm - 4:30pm

TOPICAL CASE STUDY

Skyline A

A panel from Boston University will discuss the unique partnership between Boston University and the City of Chelsea School System. The Chelsea Project offers challenging data issues for internal statistical reporting, public relations, and program assessment. The audience will be invited to participate in a discussion of this evolving project.

Moderator: Dawn Geronimo Terkla

Paradise with Paradox: An IR Director's Dream Come True

Laura Coelen
Director of Institutional Research
Paul Cohen
Database Programmer/Consultant
Holyoke Community College

3:50pm - 4:30pm

DEMONSTRATION

Skyline B

Demonstration of a micro-computer based student-unit tracking system developed with Title III funds. This extraordinarily flexible and fast software uses a relational database, Paradox 3.0, and produces standardized and individualized reports and permits tracking of retention and student performance over a 6-year period for any kind of cohort.

Moderator: Tom Gusler

1991 NEAIR CONFERENCE PROGRAM

MONDAY, November 18

Management Tools for Faculty Salary Decisions: Comparisons and Simulations

M. Patricia Gildea
Senior Policy and
Planning Analyst
Office of Policy Analysis
University System of
New Hampshire

3:50pm - 4:30pm

PAPER

Skyline C

Two management tools developed for use in faculty salary decision making are presented: 1) a book of salaries by discipline and rank compared to market means; and 2) a simulation model for disbursement of total salary dollars. The tools serve three institutions with differing discipline compositions, rank distributions and mean salaries.

Moderator: Anita Dubey

Development of Information Systems for Tracking Transfer Students

Judith A. McCarroll
Asst. Director Research
Community- Technical Colleges

3:50pm - 4:30pm

PAPER

Skyline D

A system for tracking transfer students from Connecticut Community-Technical Colleges to Connecticut State University and University of Connecticut is described, with some preliminary outcomes from data which have been collected, merged and analyzed.

Moderator: Stuart Rich

Re-Examining the Role of an Institutional Research Office in a Changing Technological, Fiscal and Political Climate

Jean Kibler
Associate for
Institutional Research
SUNY College at Plattsburgh

3:50pm - 4:30pm

PAPER

Skyline E

A task force was established by the President of the college to make recommendations about the future agenda and staffing of the Office of Institutional Research. The investigative process by which the task force arrived at its recommendations and its usefulness for other colleges will be discussed.

Moderator: Richard Rugan

5:00pm - 5:30pm NEAIR Fun Run/Walk (meet in hotel lobby)
6:00pm - 7:30pm Newcomer-Oldcomer Reception - Skyline Rooms (A - E)
Sponsored by SPSS Inc.

1991 NEAIR CONFERENCE PROGRAM

TUESDAY, November 19

7:30am - 9:00am — **CONTINENTAL BREAKFAST - Grand Ballroom**

7:30am - 2:00pm — **Conference Evaluation Form Drop - off**

7:45am - 8:45am — **TABLE TOPICS - Grand Ballroom**

A. Computer-Generated Reports for Decision Making by Academic Departments

Dona Fountoukidis
Director
Jane Zeff
Assistant Director
Office of Planning,
Research and Evaluation
William Paterson College

Computer-generated reports provide management information to department chairs, deans and other academic administrators. These reports give data at the department, school and college level on the use of adjuncts and regular faculty by course type and level; faculty credits for teaching, research and administration; and grade distributions by course and type level. The presenters will share copies of the reports and discuss their use. Participants will be encouraged to comment and to share approaches to similar reports in their institutions.

B. Instructional Workload: Overcoming the Obstacles to Presenting a Useable Analysis

Jennifer Wilton
Acting Director
Policy Research and Planning
University of Massachusetts
at Boston

There is more to measuring instructional workload than organizing the data. The task entails a complex interaction of political and technical factors which, if not dealt with appropriately, become major roadblocks. This discussion offers some details as to how this task was accomplished at UMass/Boston and presents tactics, some successful and others less so, for overcoming problems and creating an analysis which is both useable and used.

C. Surviving Reaccreditation

Dawn Geronimo Terkla
Director
Institutional Research
and Planning
Tufts University

Sooner or later (every ten years, in fact) higher education institutions undergo an accreditation visit. The purpose of this table topic is to provide a forum for colleagues who have recently gone through accreditation to share their experiences with those who are currently preparing for a review. It will be an opportunity to discuss both successful and unsuccessful strategies that have been developed in preparing for an accreditation review.

1991 NEAIR CONFERENCE PROGRAM

TUESDAY, November 19

7:45am - 8:45am — TABLE TOPICS - Grand Ballroom

D. Institutional Research on Student Sexuality

Jennifer W. Brown
Instructional Research
Connecticut State University

Issues, findings, and methodologies pertaining to research on student sexuality, with a special focus on high-risk behavior, will be discussed.

E. The Uses of Telephone Surveys in Institutional Research

Jane Price
Assistant Director
Institutional Research
Franklin & Marshall College

The contributions of telephone surveys to the field of institutional research will be discussed. Sub-topics include when to use telephone surveys, types of questions that lend themselves to telephone surveys, differential respondent characteristics, and linking survey responses to other information. Methodological issues such as how to budget for a telephone survey, what type of response rates to anticipate, and how quickly a telephone survey can be completed, will also be addressed.

F. Current Activities in Student Assessment

Larry Metzger
Director
Institutional Research
Ithaca College

How are institutions measuring and monitoring student development outside the classroom? What research initiatives are underway to improve student development in the areas of personal growth, interpersonal relations, leadership skills development, coping behaviors, etc.?

G. "Oh Say Can You See: Reflections on the Politics of Diversity, Demographics and Accreditation in Higher Education"

Darryl E. Bullock
Director
Planning & Institutional Research
Mercy College

Institutional researchers and planners can help inform campus discussion and decision-makers. The purpose of this roundtable is to explore initiatives already begun; review varieties of measures examining student growth (outcomes); and identify different methods of reporting findings.

H. Minority Pool for State System Universities

John P. Jacobsen
Data & Information Manager
PA State System of Higher Education

With the downward turn in high school graduates, are there enough minority students to meet enrollment goals for the State System of Higher Education in Pennsylvania?

1991 NEAIR CONFERENCE PROGRAM

TUESDAY, November 19

7:45am - 8:45am — **TABLE TOPICS - Grand Ballroom**

I. Retention Studies

Ingrid Telefors
Assistant to the Director of
Planning and
Institutional Research
Eastern Connecticut State

This session is an opportunity for informal discussion and exchange of ideas on creating useful and accurate retention studies.

J. Late-Breaking Topics

Kimberley Dolphin
Director
HEDS Consortium
Tufts University

Participants at this table will discuss any topics of interest or controversy that may have surfaced in higher education since the Conference Program was finalized.

K. Conference Evaluation (Invited Interview)

Stuart Rich
Director
Institutional Research
Georgetown University

Invited interview.

L. Conference Evaluation (Invited Interview)

Ellen Armstrong Kanarek
Program Director
Applied Educational Research, Inc.

Invited interview.

9:00am - 10:15am

GENERAL SESSION - Grand Ballroom
"Fantasies and Forecasts for the Year 2010"

Executive Panel:
Peter Davies, Staff College, Bristol, England
Richard Kraus, President, Cape Cod Community College
Margaret McKenna, President, Lesley College
Sherry Penney, Chancellor, Univ. of Massachusetts, Boston

TUESDAY, November 19

10:15am - 12:00 noon — **Informal Computer Demonstration and Survey Fair**

Ballroom Foyer

IBM AT and MAC II computers available for informal demonstrations. And, a sample of survey instruments from other Institutional Research offices for your review.

Cost Containment

Michael Middaugh
Director, Institutional Research and Planning
University of Delaware

Ed Delaney
Asst. Vice President, Planning
George Mason University

Other Panelist TBA

10:30am - 12:00 noon

PANEL

Skyline A

Members of this panel, representing three different sectors of higher education, will discuss the cost containment issues and challenges that their institutions are facing with a special focus on the use of institutional research services in gathering data to underpin cost containment strategies in budget planning.

Course Demand Characteristics: Analyses Based on Student Registration Activity

Bruce P. Szelest
Associate for Institutional Research
State University of New York at Albany

10:30am - 11:10am

PAPER

Skyline B

Course demand characteristics (e.g., how quickly do they fill up, high or low drop/add activity, the percent of student demand satisfied) have been utilized to aid decision makers in improving the use of their instructional resources. Registration data is analyzed and presented in a way that departmental chairs and deans can use.

Moderator: Patricia Haeuser

TUESDAY, November 19

Making a Significant Difference with Institutional Research: Findings from a National Survey

Craig A. Clagett
Director of Institutional Research and Analysis
Prince George's Community College

Robin B. Huntington
Senior Research Analyst
Institutional Research
University of Maryland Baltimore County

10:30am - 11:10am

PAPER

Skyline C

To respond to increasing responsibilities, institutional researchers must enhance their effectiveness and productivity. A national survey of institutional research directors identified both obstacles and solutions to meeting this challenge. The authors of The Institutional Research Practitioner will share "techniques that work" gleaned from the survey and their popular guidebook.

Moderator: Ellen Armstrong Kanarek

The Use of Structured Interviews in a Qualitative Study of Admissions Publications

Jane Price
Assistant Director
Institutional Research
Franklin & Marshall College

10:30am - 11:10am

PAPER

Skyline D

As the number of traditional college-aged students declines and the competition among colleges for students intensifies, an institution's recruitment literature becomes increasingly important. Institutional researchers are more frequently being called upon to evaluate the success of their institution's Admissions publications. The present study offers a framework for such an evaluation, using individual in-depth interviews with high school and college students. It includes both quantitative and qualitative data on students' preferences for different styles and strategies that are currently used in Admissions literature. **This paper won the *Best Paper Award* for the 1990 NEAIR Conference in Albany.**

Moderator: Marian Pagano

TUESDAY, November 19

A Simple Computer Model for Prioritizing and Scheduling School Visits

David R. Weir, Jr.
Associate Director of Admissions
Franklin Pierce College

10:30am - 11:10am

DEMONSTRATION

Skyline E

This workshop will demonstrate a computer model and associated files that are used by Franklin Pierce College to prioritize and schedule school visits. The target audience will be admissions and data processing staff.

Moderator: Jennifer Brown

Attrition and C.I.R.P. Correlates of a Measure of Self-Confidence Regarding Transition into College

Robert W. Baker
Professor of Psychology
Clark University

11:20am - 12:00 noon

PAPER

Skyline B

This paper reviews everyday behavioral (e.g., attrition, level of academic performance, appeals for psychological services) and test/inventory (e.g., C. I. R. P.) correlates of a modification of the Student Adaptation to College Questionnaire for prematriculation use in measuring self-confidence regarding the impending transition into college.

Moderator: Albert Lefebvre

Degrees Granted as an Assessment Measurement for Community Colleges: A Misleading Indicator

Marcia M. Lee
Director of Institutional Research
Westchester Community College

11:20am - 12:00 noon

PAPER

Skyline C

This paper will show that for community colleges in particular, the number of degrees granted is a very misleading indicator. Moreover, the validity of degrees granted as an assessment indicator is further eroding since the percentage of students whose goal is to transfer, not graduate, is increasing. This trend has important implications for the newly enacted Students' Right To Know and Campus Security Act (P.L. 101-542), which modifies previous regulations and goes into effect July 1, 1993.

Moderator: Marian Walker

TUESDAY, November 19

Estimating Numbers of Students with Disabilities, Their Needs and Ratings of Facilities and Services

Marian N. Steinberg
Director of Planning and Institutional Research
Eastern Connecticut State University

11:20am - 12:00 noon

PAPER

Skyline D

A survey was developed and administered to a sample of our total student body to estimate the number of students with disabilities, and the types and magnitudes of disabilities. In addition, all respondents were asked to evaluate facilities and services.

Moderator: Jane Price

Understanding and Using the Admitted Student Questionnaire (ASQ)

Ellen Armstrong Kanarek
Program Director
Applied Educational Research, Inc.

11:20am - 12:00 noon

DEMONSTRATION

Skyline E

This workshare is designed for users of the Admitted Student Questionnaire, new or experienced, who wish to explore ways of supplementing the standard ASQ reports. Topics will include preparing an executive summary; using college overlap information; using the Norms report; and relating ASQ to other institutional data.

Moderator: Michael McGuire

12:00 noon - 3:00pm STEERING COMMITTEE/LUNCHEON - University A

TUESDAY, November 19

Introductory Statistics for Institutional Research

Marian Pagano
Researcher/Analyst
Office of
Institutional Research
Tufts University

1:00pm - 4:00pm

WORKSHOP

Skyline A

The very basic in statistics will be covered in a way useful as an introduction or as a refresher to statistics. Data from an actual IR project will be used for illustration. Descriptive statistics, sampling and probability theory (including the famous M&M exercise), and three inferential methods (chi square, t-test, and Pearson's r) will be covered. Participants will receive a notebook detailing the materials covered. **This is an encore presentation of a Sunday morning workshop.**

Principles of Financial Management and Analysis for Institutional Researchers

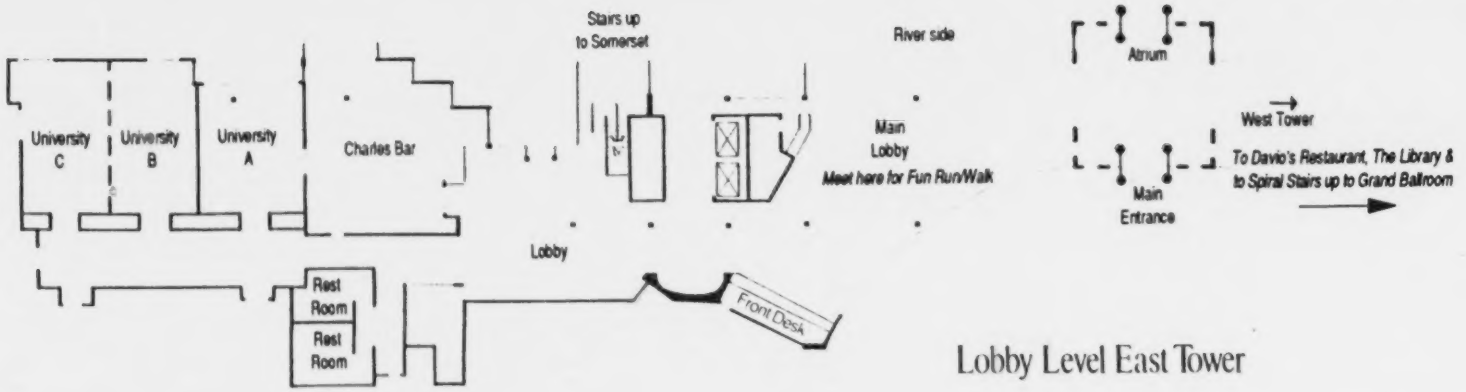
James P. Honan
Associate Director of
Programs and Professional
Evaluation
Harvard University

1:00pm - 4:00pm

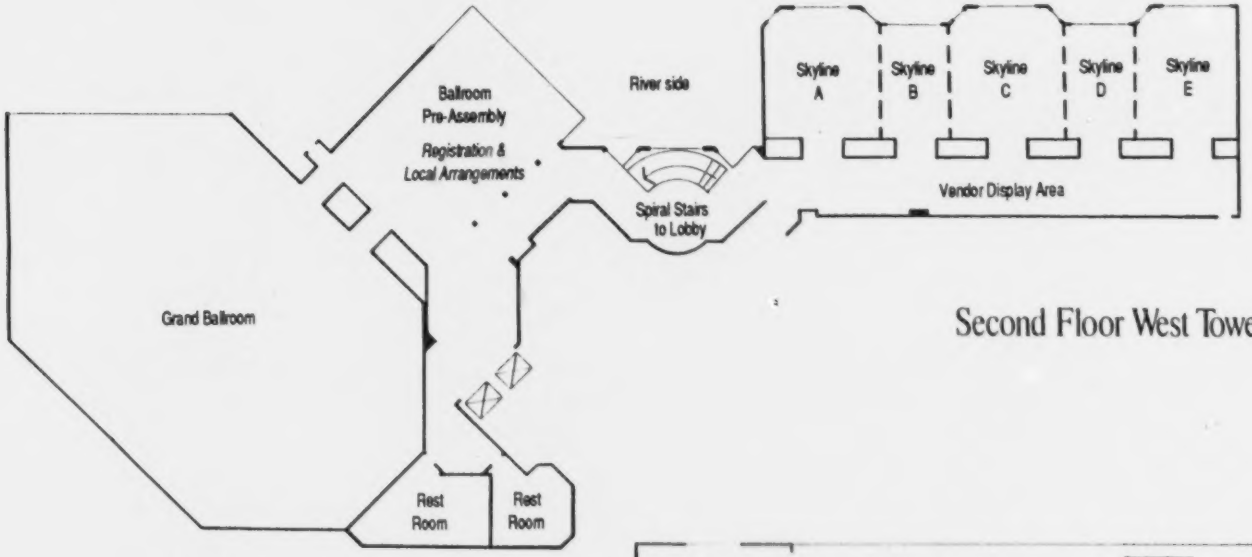
WORKSHOP

Skyline C

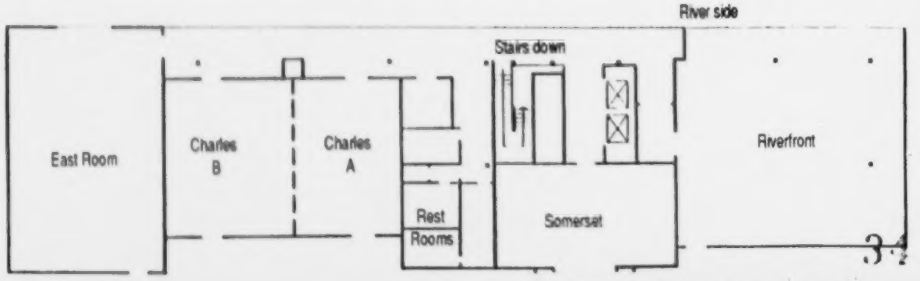
This workshop is designed for individuals with little or no knowledge of nonprofit financial management and accounting terms, concepts, and analytic techniques. It will provide institutional research professionals with a broad understanding of the development and use of financial information in colleges and universities. Among the topics which will be discussed are fund accounting, chart of accounts, basis of accounting, preparation and interpretation of financial statements, ratio analysis, and budgeting formats. Selected readings, a specific case study on financial management and analysis in higher education, and a glossary of terms in nonprofit financial management will be utilized. The workshop will not attempt to produce accountants or budget officers. It is intended to improve management and analytic skills by making participants better consumers of financial data. **This is an encore presentation of a Sunday morning workshop.**



Lobby Level East Tower



Second Floor West Tower



Second Floor East Tower

1991 NEAIR CONFERENCE PROGRAM

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STEERING COMMITTEE 1991-92 MEMBERS-AT-LARGE

Michael F. Middaugh (Past President), Director of Institutional Research and Planning, University of Delaware

Brenda Bretz (Membership Secretary), Assistant Registrar, Dickinson College (Ex-officio)

Marian Pagano, Research Analyst, Tufts University

Jennifer Brown, Director of Institutional Research, Connecticut State University

Albert C. Lefebvre, Director of Institutional Studies, Clark University

Craig Clagett, Director of Institutional Research and Analysis, Prince Georges Community College

Tom Gusler, Assistant Academic Vice President, Clarion University of Pennsylvania

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CONFERENCE PROGRAM 1991 CHAIR

Michael McGuire, Director of Planning and Institutional Research, Franklin and Marshall College

1991 NEAIR CONFERENCE PROGRAM

CONFERENCE PROGRAM 1992 CHAIR	Ellen Armstrong Kanarek, Program Director, Applied Educational Research
LOCAL ARRANGEMENTS 1991 CHAIR	Susan Forti, Special Projects Manager, Boston University
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Acknowledgements

Special thanks to: Audrey Adam, John Jacobsen, Marian Pagano, and Jane Price for their help in preparing the Program and making other conference arrangements. The Office of Analytical Services at Boston University for supplying the demonstration computers.

NOTES:

Badges must be worn to **all** Conference events.

Be sure to sign up at the Registration Table for the Monday dinner groups **by 2:00 on Monday.**

Meet at **5:00 on Monday** in hotel lobby for NEAIR Fun Run/Walk

Attrition and C.I.R.P. Correlates of a Measure of Self-Confidence Regarding Transition into Coll

Robert W. Baker *
Professor of Psychology
Clark University

I would like to tell you today about a test I devised to measure matriculating students' expectations regarding their impending adjustment to college. Another name for the variable the test is intended to measure is level of confidence about one's adjustive capacity in the college experience.

The test is called the Anticipated Student Adaptation to College Questionnaire, or ASACQ, and typically is administered prematriculation (Baker, McNeil, & Siryk, 1985). It is a variation of another test I devised earlier called the Student Adaptation to College Questionnaire, or SACQ, which is designed for postmatriculation use in measuring actual adjustment to college (Baker & Siryk, 1989). There is a lot of published information concerning the reliability and validity of the SACQ (Baker & Siryk, 1989; Baker, 1991a), but not so much about the ASACQ, and a principal aim of my talk today will be to begin to redress that balance to the extent permitted by available data.

The ASACQ consists of 67 items, each one a sentence fragment alluding to one or another aspect of the experience of adjusting to college, and prefaced by the phrase "I expect." For example, the first item is: "I expect....to fit in well as part of the college environment." Students are asked to project themselves halfway into the first semester and rate on a 9-point scale the degree to which they expect the statement will apply to them at that future time.

There are four kinds of sentence fragments. One kind refers to academic aspects of the college experience, another to social aspects, a third to personal-emotional aspects (i.e., sense of psychological and physical well-being), and a fourth to goal commitment/institutional attachment. The Questionnaire yields a full-scale score and a subscale score for each of the four kinds of sentence fragments just mentioned. In the first research use of the ASACQ it was coupled with the SACQ in a study of the relation between prematriculation expectations regarding adjustment to college and the subsequent postmatriculation reality. Some of you may remember that George Stern and his associates (Stern, 1966, 1970) had earlier reported a phenomenon called the "freshman myth," in which entering freshmen were found to expect more from the college environment than they subsequently saw themselves as getting. We found in our research that a similar state of affairs exists for our data. That is, as a group effect,

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* The research reported in this paper was supported by a grant to the author from the National Research Advisory Association.

students expect more from themselves in terms of adjustive capacity in the college experience than they subsequently realize. Just as Stern found that there is disillusionment regarding what students expect from the college environment, we found that there is disillusionment regarding what students expect of themselves.

The first slide contains data from several institutions showing very consistent findings concerning self-disillusionment. The numbers represent percent change from anticipated to actual adjustment scores. Down the left-hand margin are the adjustment indices, and across the top are the names of the institutions. A single asterisk by a number indicates statistical significance at the .05 level; two asterisks, the .01 level. A minus sign indicates a decrease in score from ASACQ to SACQ, a plus sign indicates an increase.

Note the prevalence of minus signs, and asterisks. And note the relative consistency across institutions in magnitude of change within each adjustment measure. Note further the almost identical data for two Clark freshman classes ten years apart. I would like to infer from the regularity of these data that the ASACQ/SACQ combination is measuring something quite consistently, reflecting the reliability of both instruments.

If we look beyond the group effect, to what happens for individual students, we see that not all show the disillusionment. For some, the level of actual adjustment is just about what they predicted; for others it is even higher than what they expected of themselves.

Then, if we take a next step to see what kind of behavioral correlates there might be of differences in disillusionment, there are even more interesting data. Disillusioned students have poorer academic performance, not only in the freshman year but also subsequently; they are more likely to be known to a psychological services center during the freshman year; they have a substantially higher rate of withdrawal from college and are less likely to graduate on time; and they report lesser overall satisfaction with the college experience (Baker et al., 1985; Gerdes, 1986). The graduation rate for disillusioned students six years after matriculation was 55%, as compared with 86% for non-disillusioned students (Baker, 1991b).

In addition to these dramatic behavioral correlates, there is clear evidence that students are quite aware of their pre- and postmatriculation adjustment status, and of change from one to the other (Baker & Schultz, in preparation).

But what about the capacity of the ASACQ itself -- i.e., not in tandem with the SACQ -- to predict other variables to which reasonable people would expect it to be related? The remainder of this paper will be an attempt to answer that question.

Early research found that, among matriculating engineering freshmen, the higher their expectations concerning their adjustive capacity the more decided they were prematriculation regarding their academic major (Plaud, Baker, & Groccia, 1990). Another early finding was that students with low expectations, i.e., with less confidence about their adjustive capacity, were more likely to enroll prematriculation in a help-offering program (Gerdes, 1986).

In our quest for ASACQ correlates we can revisit SACQ data and ask whether, or to what degree, matriculating students' level of confidence regarding adjustive capacity predicts postmatriculation self-assessed adjustment. That is, does prematriculation confidence level forecast what actually happens subsequently? The answer is that it does, and with reasonable accuracy. Data from two Clark University samples and from two other institutions show consistently positive (as would be expected), statistically significant, and moderately strong correlations between corresponding ASACQ and SACQ indices (e.g., anticipated academic adjustment vs. actual academic adjustment, anticipated social adjustment vs. actual social adjustment). Interestingly, correlations with second semester SACQ scores are of the same approximate magnitude as with first semester scores.

From information collected prematriculation as part of the regular admissions process at Clark University, we selected two kinds of items as criterion variables for the ASACQ. One kind alluded to students' academic or other personal history experiences that might be expected to build confidence regarding adjustive capacity in the college setting. The other kind represented experiences or personal characteristics implying varying levels of such confidence. Higher ASACQ scores were found for students who had studied abroad; who had participated in student government in high school; who were tutors in high school; who had higher class standing in high school; and who were early decision applicants to college.

Next, we reviewed data from the ACE-UCLA Cooperative Institutional Research Program's annual freshman survey for criterion variables. We selected items 25 and 38 as particularly relevant.

Item 25 from the C.I.R.P. questionnaire asks students to rate themselves on a five point scale for each of 16 traits in comparison with the average person their age. The traits refer to various abilities, talents, and motivational characteristics that would contribute positively to adjustment to college.

Several of the traits are relevant to the performance of academic tasks (e.g., academic ability, drive to achieve). Others pertain to social activities, (e.g., leadership ability, social self-confidence). Still others concern personal-emotional adjustment (e.g., emotional health, physical health). Thus, we would expect positive correlations between the 16 traits and the pertinent ASACQ indices. Furthermore, for each trait we would expect differential degrees of correlation with the several subscales as a function of the relation between the nature of the trait and the aspects of adjustment measured by subscales.

Let's look at another slide. Here the ASACQ indices are across the top, and the traits -- categorized as to area of adjustment -- are on the left-hand margin. A single asterisk indicates a statistical trend ($p < .10 > .05$); two asterisks, significance at the .05 level; and three asterisks, the .01 level.

As you can see, there are a lot of asterisks. Of the 80 values, only nine fail to show at least a trend. Of the 71 asterisked values, only three are in the direction contrary to expectation. Within the three categories of traits, the differential relations with ASACQ subscales run pretty much according to expectation. That is, the highest correlations for the social-related traits are with the Social Adjustment subscale, and for the personal-emotional-related traits with the Personal-Emotional Adjustment subscale. The same is generally true, though to a somewhat lesser extent, for the association between the academic-related traits and the Academic Adjustment subscale.

Item 38 of the C.I.R.P. survey asks students for their best guess as to the chances, rated on a four point scale, that certain things will occur in their future. The future events include decisions, actions, or accomplishments (or lack of accomplishments) that can be divided readily into categories relevant to the four ASACQ subscales. Thus, changing major field or failing courses would be relevant to academic adjustment; being elected to student office or joining a social organization are related to social adjustment; seeking counseling is pertinent to personal-emotional adjustment; and dropping out of college or transferring to another college are relevant to institutional attachment/goal commitment.

Because of the wording of the different future events, the correlations between some of them and the ASACQ indices should be positive and others negative, and for some it is difficult to decide whether there should be any relation at all. As was the case with the self-ratings of item 25, it is expected that the future events that are adjustment-relevant would be differentially related to the ASACQ subscales as a function of the relation between the event and the aspects of adjustment measured by the subscales.

In slide 3, the ASACQ indices are again arrayed across the top, and the future events are in the left-hand margin, again categorized as to the areas of adjustment to which they should be most pertinent. For the academic-related future events, 41 of the 45 comparisons are statistically significant and in the expected direction, and three more show trends toward significance. Also as expected, the events correlated to a higher degree more consistently with the Academic Adjustment subscale than with the other three subscales.

The results for the ten social-related future events are less uniform, in large degree possibly because of the questionable relevance of many of the future events to effectiveness of social adjustment. Of the three that do seem relevant (election to student office, joining a social organization, and participating in athletics), 13 of the 15 correlations are significant and in the appropriate direction. And the correlations tend to be higher with the Social Adjustment subscale than with the other subscales.

The correlations for the one personal-emotional related future event are all statistically significant, in the expected direction, and highest with the Personal-Emotional Adjustment subscale.

The pattern for the five future events relevant to institutional attachment/goal commitment is uniform and consistent with expectations. Nineteen of the 25 comparisons are statistically significant and in the expected direction, and there is one trend toward significance. The correlations tend to be strongest, as expected, with the Attachment subscale.

The C.I.R.P. data taken all together provide considerable support for the inference that the ASACQ variables do indeed measure what they are intended to measure.

Almost all of the criterion variables considered to this point are of a verbal, self-report nature. Now let's look at the relation between the ASACQ and several postmatriculation adjustment-relevant behaviors.

We found a modest but statistically significant correlation in the expected direction between the ASACQ subscales and being known to a campus psychological services center during the freshman year. The ASACQ variables do not predict freshman year grade point average in our samples, and there is contradictory information concerning number of credits earned in the freshman year. With last year's freshman class, there were significant or near-significant correlations in the expected direction between all ASACQ indices and number of credits earned. But in an earlier Clark sample significant negative correlations of the same approximate modest magnitude were obtained between several ASACQ variables and the criterion.

Again, with last year's freshman class there were significant and reasonably substantial correlations in the expected direction between ASACQ variables and attrition after both semesters. But, alas and alack, in the same earlier class cited above there were no significant correlations in the expected direction after either semester, and, indeed, after the first semester there were significant or near-significant, though weak, correlations in the direction contrary to expectation for several of the ASACQ variables.

In the same earlier class cited above, there were significant and reasonably sizeable correlations in the expected direction between all but one of the ASACQ variables and outcome of application for dormitory assistant positions in the junior and senior years. Thus, the more confident that entering freshmen were about their adjustive capacity, the better their chances were for being hired if they applied for positions as dormitory assistants as juniors or seniors. But there were no significant correlations for that class between ASACQ indices and gaining positions of campus organizational leadership, winning annual honors in the upper three years, or being elected to Phi Beta Kappa.

Thus, evidence concerning the relation between the ASACQ and postmatriculation behavioral variables is somewhat mixed, though still largely consistent with expectations. Expecting that a measure of self-confidence taken prematriculation will predict postmatriculation real-life behaviors and outcomes is a very stringent test of the meaning of ASACQ variables. Possibly a better and fairer test would be to employ as criteria behaviors and outcomes more contemporaneous with the administration of the ASACQ. A whole new line of research could be opened if the ASACQ were to be

employed with students while they were still in high school and if the high school experience itself were examined for behavioral events relevant to varying expectations or level of confidence regarding subsequent adaptation to the college experience.

In conclusion, I think there is ample indication in the data presented here that the ASACQ does indeed measure what it is intended to measure, and that what it measures is a variable of considerable consequence in the lives of students. Further research is certainly in order to explore more extensively the meaning of the variables tapped by the ASACQ, as well as to explore the uses of the instrument in counseling and intervention.

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An Information Infrastructure for Enrollment Management
Tracking and Understanding Your Students

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Introduction

Well-designed and executed institutional research is the key to successful enrollment management. Enrollment management can be defined as a coordinated effort to influence the size and characteristics of an institution's student body, through marketing, recruitment, admissions, pricing, financial aid, advising, and other policy choices.

Conceptually, enrollment management links research on individual college choice, student-institution fit, and student retention. Although it is an organizational construct, enrollment management is founded on information, largely derived from institutional research and policy evaluation. To be successful, enrollment managers must understand the forces that influence individual decisions about college choice and persistence. This micro-level understanding is prerequisite to answering institutional policy-level questions. It is useful to analyze student enrollment in a linear student flow model, from initial inquiry through application, enrollment, persistence, completion, and continuing to post-graduate follow-up. Enrollment managers need answers to numerous questions at each stage of student experience with the institution. For example:

* How widely known is the college? How do prospective students view the college? What other institutions are considered by prospective students?

* How can we increase the size of the applicant pool? How can we attract the students we would most like to enroll?

* How can we improve yield? How effective are our existing recruitment activities? What factors differentiate our college from its closest competitors and influence admitted students' final choices?

* What influence does financial aid have on student decisions to enroll and persist? What is the perceived campus culture or climate, and what influence does it have on retention and attrition?

* What proportion of a freshman class persists to graduation? Do any student subgroups exhibit significantly higher than average attrition? Why do some students persist while others do not?

* How successful are our alumni in their post-graduate endeavors? What proportion remain involved with the institution? What characteristics describe alumni donors?

This sampling of student decision and institutional policy questions captures the comprehensive, long-range nature of an enrollment management program. The results of recruitment are measured not just in terms of the number and characteristics of new students who enroll but by the number who become well-adapted, successful students and productive alumni. The encompassing reach of enrollment management also suggests how difficult it can be to implement successfully. Indeed, Dolence (1989-90) has asserted that over half of the institutions that try to establish enrollment management programs fail.

Literature

The literature pertinent to enrollment management falls into two broad types. First is the recent body of work explicitly concerning enrollment management as an organizational construct or process. Written within the past ten years, this literature is largely responsible for the spread of the concept and language of enrollment management. The second and more diverse body of literature consists of the research and policy studies that form the necessary information infrastructure supporting the successful implementation of an enrollment management process. Research into student college choice, student-institution fit, pricing and financial aid, student attrition, and other related topics can all be considered part of the enrollment management literature. Understanding student behavior is prerequisite to influencing it.

Though many institutions claim to have implemented an enrollment management program, articles in the literature suggest that effective programs are rare. As cited above, Dolence asserted that over half of the institutions that tried to establish an enrollment management program were unsuccessful. Among the necessary conditions for effective enrollment management, Claffey and Hossler (1986) argued that information was paramount:

> Planning and evaluation are at the heart of an enrollment management system, but the single most critical element in all of this effort is accurate, timely, usable information. Thus, our ability to influence our enrollments to any degree is a direct function of the information...available. (p. 106.)

Hossler (1987) argued that in practice enrollment management had simply become a new term for the work of admissions offices. Would-be enrollment managers were not developing the requisite knowledge base in student college choice, student-institution fit, student retention, the impact of financial aid, and other research but rather were

changing titles and rearranging organizational charts. This is where the second broad category of enrollment management literature, plus local institutional research, becomes essential.

A growing body of literature exists to provide enrollment managers with a foundation of knowledge for interpreting their own campus research and experience. The recruitment literature includes research on student college choice (Litten, Sullivan, and Brodigan, 1983; Zemsky and Oedel, 1983; Lay and Endo, 1987), student-institution fit (Williams, 1986), and the impact of pricing and financial aid (Litten, 1984; Leslie and Brinkman, 1987). The student persistence literature includes several useful reviews and anthologies (e.g., Pascarella, 1982; Tinto, 1987) as well as innumerable case studies. In addition to the findings of educational research found in the scholarly literature, the enrollment manager relies heavily on institution-specific information. Useful articles on using institutional research for enrollment management include Davis-Van Atta and Carrier (1986) and Glover (1986). This paper presents one approach to organizing institutional research support for enrollment management that has proven successful at two very different institutions.

Enrollment Management Information Needs

The information needs of the enrollment manager fall into two categories: performance monitoring indicators (PMIs) and policy research and analysis. To track and evaluate the implementation and success of an enrollment management program, specific quantifiable measures are needed. Ideally the PMIs are developed with the consultation of the offices responsible for each stage of the enrollment process, and are used by the enrollment manager to evaluate the performance of each unit as well as to oversee the broader institutional enrollment picture. To assist unit directors and the enrollment management planning team in developing strategies for achieving the goals associated with the PMIs, institutional research may conduct in-depth policy studies on specific issues. Examples will be discussed in a later section.

Performance Monitoring Indicators

The coordinating and integrating functions of enrollment management are facilitated by the availability of a comprehensive set of agreed-upon performance monitoring indicators. The PMIs are typically simple counts or ratios that report the status of enrollment at a point in time. Most colleges track at least some PMIs for the recruitment phase (encompassing the first three stages of student decision, namely inquiry, application, and enrollment). Key PMIs may be tracked daily during the application and registration period. An enrollment management plan would have established targets or expectations for each of these indicators. At a minimum, the enrollment management team should have clear expectations about the number of applications, offers of admission, and resulting enrollments anticipated for the planning term. The mix of full- and part-time students, and the credit hours or full-time-equivalents they generate would usually have been forecast for budget planning purposes and also routinely tracked during the registration period. Since enrollment

management concerns the characteristics as well as magnitude of enrollment, other attributes, such as the SAT score distribution of applicants, admits, and enrolles, may be monitored. The racial/ethnic composition at each stage may be reported to help in monitoring achievement of desegregation and diversity goals. The distribution of enrollment by college, program, discipline, class location and time would be monitored for departmental faculty and facilities planning.

Performance monitoring indicators are also useful for evaluating the student retention phase, broadly defined to include not only student persistence to graduation but also postgraduate association with the institution, as active alumni, contributors, or continuing education students. Among the PMIs for this phase might be retention rates of various student groups to their second semester, since this is a time of high attrition, and persistence rates to sophomore, junior, and senior status. Graduation rates for different populations, such as athletes and racial/ethnic groups, might be routinely reported. Finally, student outcomes indicators such as the number transferring or entering graduate school, the number passing licensure examinations, the percent obtaining program-related employment, and the percent satisfied with their college experience (gleaned from follow-up surveys) might be tracked.

Much of the data needed for monitoring the performance of the enrollment management effort come directly from the information gathered from student applications and registrations transactions. The typical campus student information system contains both term enrollment and student history or transcript files that together include demographic, course enrollment, and performance data useful for enrollment monitoring purposes. Special record-keeping procedures may need to be implemented beyond those commonly in place, however. For example, a system may need to be implemented in admissions for tracking mail and phone inquiries. Surveys may be needed to gather background information beyond that required in the college application. Follow-up surveys will be necessary to learn post-enrollment outcomes.

Organizing Information for Enrollment Management

While collecting the data needed for effective enrollment management is usually not difficult, the more frequent problem to its successful application is its organization. Standard transcript files and frozen term files are not ideal for student flow studies. Transcript files contain elements that are periodically updated, with old values usually written over and lost. Term files are often archived off-line and pulling selected elements from several such files can involve extensive programming and media manipulation. Survey research may have been conducted in isolation from record-based studies and survey data stored in separate datasets, perhaps on a microcomputer disk. The following steps can greatly facilitate the application of data to enrollment management decision making:

1. **Construct separate longitudinal files for tracking selected student cohorts.** Since enrollment management encompasses student experiences with an institution from inquiry to post-graduation, data systems parallelling this student flow continuum are most useful. In place of discrete files established for other purposes, most institutions will benefit from the construction of separate

longitudinal cohort files for enrollment management analyses. Free-standing tracking files for selected entering cohorts of students preserve key data values and facilitate data analysis. The data elements in such files fall into three broad categories. First are student attributes such as demographic and academic background variables usually collected as part of the application process. Next are student progress variables recorded each term, such as credit hours attempted and earned and term grade point average. Finally are outcome measures for graduates and those who leave without completing a program. These may include further education and employment indicators. Because tracking numerous cohorts simultaneously is complex, and because there usually is little variation in successive years (unless substantial changes in institutional policies or entering student characteristics have occurred), it is generally sufficient to track classes entering every third year. Most institutions will track only cohorts entering in fall terms, though spring or summer entrants if substantial in number or notably different in characteristics may warrant separate tracking. Students should be tracked for six to eight years to allow time for part-time students and stop-outs whose attendance is interrupted to graduate.

2. **Include data elements allowing analysis of specific student subgroups of interest.** In addition to the obvious demographic variables included as a matter of course, ensure that data elements are incorporated in the tracking file identifying subgroups of students of research interest at your institution. While it is usually possible to go back to original files to obtain data whose need was not foreseen, this can be cumbersome. It is better to anticipate likely research questions and include the requisite data elements from the start. These may include identifiers for remedial students, non-native English speakers, participants in special programs, athletes, scholarship recipients, or others groups of special concern.

3. **Conduct survey and focus group research to illuminate key student decision points.** Survey research is most useful when designed and implemented to add to information yielded by the tracking system. Administer surveys to investigate student motivations, attitudes, and decision-making processes at key points in their college experience: at entry, after their first semester, immediately after they leave. Add key survey response data to fields reserved for this purpose in the longitudinal cohort file, or maintain separate files for survey data that can be easily linked (via the SSN) to the longitudinal data. Qualitative research findings such as those learned in focus groups can add insights into student behavior beyond those reported in typical mail survey responses. They can provide a reality check: student decision processes may be more disorganized and uninformed than the responses elicited by multiple-choice survey questions suggest. Examples of focus group applications to enrollment management include assessing institutional image and position compared to the competition, evaluating promotional materials, learning the special needs of particular student groups, and generating new ideas for improving or adding services.

Policy Research and Analysis

Along the continuum from initial inquiry through post-graduate relationship with he institution, students face continual decisions: whether to apply, whether to enroll, whether to continue (a decision made each term). To influence student enrollment patterns, it is essential to know as much as possible about the key student decision points: when the crucial decisions are made, what factors influence the decisions, how the institution might influence the decisions. While your PMI tracking system can help identify the key points, more in-depth research and analysis are needed for an adequate understanding to inform relevant policymaking.

Examples of Enrollment Management Policy Research

Four examples of enrollment management research conducted at a large, open-admissions community college in suburban Washington, D.C. will illustrate the kinds of issues and approaches to studying them that characterize a comprehensive enrollment management information support system. Similar research needed at a senior institution would probably differ in scope and focus. The recruitment and retention research needed at each institution will reflect the individual circumstances, clientele, and mission of the campus involved.

Focus group study of delayed-entry students. Nearly two-thirds of the public high school graduates of the county served by the community college do not go to college the fall immediately after high school graduation. While community colleges have had success serving older adult students, little has been written about younger, "delayed entry" students--those starting college one to three years after high school. A series of focus groups coordinated by institutional research revealed that such students saw themselves as a unique group, more mature and motivated than 18-year-olds yet closer to them in age and interests than to "adult" students. Most had postponed college to continue working in jobs begun while in high school. Jobs and careers provided a sense of purpose to these students; many cited job skill development or a desire to change careers and leave dead-end jobs as their reasons for entering college. These students described a sense of pride they had from paying for their college education, compared to 18-year-olds whose parents were footing the bill. They linked this to their motivation to succeed; without exception, they felt they were more committed to their studies than younger students. They described initial feelings of doubts about their abilities to keep up with the traditional students just out of high school, but found these fears quickly dispelled in their first classes. (The lack of a standardized admissions test requirement was a factor for many in choosing the community college.) The time out of school provided motivation, resources, and confidence to start college. Yet most stated they wished they had been more encouraged to attend while still in high school. Desperation for time to study was a common theme; students said it was important to schedule library time on campus between classes to be able to study in an atmosphere less disruptive than at home. Departments were urged to schedule more night and weekend classes and to ensure that full course sequences could be completed by students attending in limited time frames. Marketing implications from the focus group research

included targeted messages to this specific group, emphasizing a personal, nonintimidating image of the college, a career advancement perspective, and an appeal to the pride and maturity of the youngest set of "adult" students.

Geo-demographic market analysis. Though the community college primarily serves the residents of a single county, its service population is quite diverse. With a larger population than five states, the county is an aggregation of many, quite different, neighborhoods. Reliance on county-wide Census and other data for planning purposes can be misleading, obscuring pockets of prosperity and pockets of poverty. Using lifestyle cluster analysis, the research office identified 24 distinct neighborhood types within the county. These neighborhood types vary in terms of their socioeconomic status, ethnic composition, housing stock, family life cycle stage, and other variables. Residents of these different neighborhoods have varied lifestyles, aspirations, and educational needs. By geo-coding student address lists, the research office was able to perform a new kind of enrollment analysis based on the lifestyle cluster typology. Contrary to expectations, the analysis revealed that the college's highest penetration was in the upscale clusters. The clusters differed in their mix of credit and noncredit student contribution, and in the coursetaking choices of their residents. For example, on the noncredit side, factor analysis revealed seven product themes (e.g., career exploration, high technology, creative impulse) within the overall course mix; these product themes, in turn, attracted enrollments from distinct sets of neighborhood clusters. The cluster typology was also used to investigate student outcomes on the credit side. The clusters grouped into six outcome patterns. For example, residents of mostly white, middle class, blue collar neighborhoods had the highest A.A. degree completion rate, but very low rates of transfer to senior institutions. Residents of mostly black, middle-class clusters had relatively low A.A. degree attainment rates but high rates of transfer to four-year colleges. The county's largest cluster, characterized by well-educated young singles and new families, had a unique outcome pattern of low rates of graduation and transfer but an extraordinary rate of continuing enrollment. Since this cluster already contains a high percentage of college graduates, it is likely that many of its residents were using the community college for job skill upgrading on a recurring basis. The geo-demographic market information, processed through the custom lifestyle cluster analysis, yielded a wealth of new insights about the county and how its residents were using the community college. Combining the precision of Census tract socioeconomic data with the enrollment and achievement histories available on student databases produced an information resource of great analytical and operational promise. The college is currently applying what it has learned to the development of targeted marketing strategies.

Telephone survey of non-returning students. Longitudinal analysis of students entering the community college as first-time students in fall 1980 found that 27 percent attended that one semester only and did not reappear on college enrollment files during the next 8 years. With over a quarter of the college's new fall entrants--over a thousand students--not returning for a second term, the tracking system had clearly identified a key student decision point. Why do so many students discontinue their studies after only one semester? What can the college do to influence more to continue? To address

these issues, a telephone survey of fall 1987 entrants who did not return for classes in spring 1988 was conducted. While more expensive than a mail survey, the phone survey overcame the problems of poor response rate and response bias likely with a mail survey of this population. To moderate costs, on-campus interviewers were trained and monitored by institutional research staff. A total of 343 interviews were completed in the time allotted for the survey. Four in ten respondents gave employment-related reasons for discontinuing their studies. Nearly a third said that a lack of time prevented them from continuing. Other major reasons given for not returning included achievement of their goal at the college, transfer to a senior institution, and changes in family situations. What was notable about these responses was that they had little to do with the college, its services, and the students' experiences at the college. When asked if the college could have done anything to have influenced them to return, more than 80 percent said no. Those that said yes cited course availability and scheduling difficulties and lack of financial aid for part-time students. Eighty-five percent said they planned to return to the college. The survey affirmed that the high attrition at the end of the students' first term was not due to dissatisfaction with the college, but rather reflected the circumstances of the contemporary community college student. The findings prompted a review of course scheduling and an investigation of aid possibilities for part-time students; but its major insight was that high attrition may be inherent given the nature of the population being served.

Patterns of attendance analysis. External agencies, including Congress, state legislatures, and regional accrediting bodies, are mandating disclosure of college graduation rates. Overall graduation rates at community colleges are typically low, often under 15 percent. The colleges need to understand the factors producing such low rates in order to adequately explain them and perhaps design programs to improve them. Yet many colleges have little knowledge of student attendance patterns and their relationship to progress toward degree attainment. Longitudinal cohort analysis conducted at the community college provided a basic understanding of student patterns of behavior and identified several areas for further study. Tracking students over an eight-year period, it found that over a fourth of the first-time students entering in Fall 1980 attended only that one semester. Another third, the "stop-outs," had interrupted patterns of attendance. Students able to attend without interruption were much more likely to graduate. While only 12 percent of the entire cohort had graduated from the community college within 8 years, a majority (56 percent) of those who attended for six or more consecutive semesters graduated. Many who discontinued study at the community college had transferred to four-year colleges and universities. Analysis of graduation and transfer data for seven entering cohorts (Fall 1980 through 1986) found increasing proportions of students transferring without first earning a community college award simultaneous with a decline in A.A. degree attainment rates. Concurrently with these retrospective cohort studies, the research office initiated a project to follow the Fall 1990 entering class in depth. Following a contemporary group of students promises to provide a better understanding of both the progress and achievements of current students and the impact of current institutional policies. Preliminary analysis after two terms found a quarter of the students had yet to earn a single credit. The median cumulative credits earned for the cohort was six. Less than two percent were on

a pace to graduate within two years. The need to complete remedial courses was slowing credit accumulation for many. Three-fifths of the entrants completing placement testing needed remediation in at least one area of reading, composition, or mathematics. The extent of need was severe for many students. For example, after two semesters, only eight percent of those who needed and had taken remedial mathematics were ready to take the introductory credit mathematics course. Nearly four-fifths of the students had been placed in remedial mathematics courses in which successful completion would prepare them for another, higher level remedial course. Thus, the initial findings from the longitudinal cohort analysis prompted a more in-depth look at the remedial program at the college. Further cohort tracking and remedial program evaluation studies are underway.

Conclusion

Efforts to influence the magnitude and composition of campus enrollments depend on timely, accurate information. Data are needed for monitoring the ongoing enrollment picture, as well as for investigating in detail student decision making concerning college choice and persistence. This paper has presented one way of organizing the institutional research support that is essential for effective enrollment management. The framework advocated here has several advantages:

1. Its encompassing perspective forces an institution to look at student interaction with the college as a continual process through time, starting with an initial inquiry and continuing on after formal classwork ends.

2. It encourages development of enrollment targets, performance monitoring indicator systems, and longitudinal cohort tracking files for following and analyzing enrollment patterns--tools of great value.

3. It identifies areas of student behavior where institutional knowledge is insufficient, so that scarce research resources can be devoted to studying student decision points where the greatest insights may be uncovered.

4. It promotes collaboration between institutional research and enrollment management administrators, so that enrollment research will be directly focused on institutional policy issues.

5. It provides structure and direction to the enrollment analysis part of the institutional research agenda.

When fully realized, the information infrastructure advocated here promises to provide the foundation for effective enrollment management.

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The Special Relationship and Higher Education: How the UK and USA Systems Might Learn More From Each Other

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(The views expressed in this paper take the form of a British perspective presented to an American audience. To a large extent they have been influenced as a result of my involvement in recent years in Anglo-American educational initiatives in conjunction with Maguire Associates, Inc. Our continued collaboration encompassed the preparation of this paper and Dr. John Maguire is therefore acknowledged as co-author.

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Introduction

Despite those who still subscribe to Oscar Wilde's ironic aphorism of "two peoples divided by a common language", the so-called "special relationship" between the United Kingdom and the United States of America seems more tangible than at any time since the Second World War. Events in the Gulf and in Eastern Europe have drawn our countries closer together politically, and this seems to be welcomed by the majority of voters on both sides of the Atlantic.

Educationally, too, links are stronger than ever. In my position as a tutor in the UK's only independent, publicly funded, residential college for the development and training of college administrators, I and my colleagues have over the years been regularly involved with the organization of Anglo-American higher educational conference programs and study visits. The British members of these programs have been keen to seek American help and advice, particularly on ways of enhancing access to higher education and in constructing systems for credit accumulation and transfer. Current developments in UK HE look set to encourage action in these areas. The first part of this paper is devoted to setting out my views on the ways in which the experience and expertise of American educators on these and other issues can assist their counterparts in the UK, to mutual advantage.

I shall also argue that this trade in ideas should not by any means be one way. American visitors to the UK system of HE have also been impressed by things they have seen. This paper therefore goes on to suggest aspects of developments in the UK that should repay study by US educators - in particular those connected with cost-effective vocational education.

Two further introductory points. In the title of the paper I have adopted the American approach of using the term 'Higher Education' to embrace all post-secondary provision. Readers should note, however, that the British divide this sector into two parts, further and higher education. The former term is applied broadly to institutions providing post-secondary education below first degree level, and the latter to the polytechnics, universities and other institutions providing education including that at first degree level and above. (The nearest US equivalent to a UK polytechnic would be a state university and to a UK college of further education would be a junior or community college.) Conversely, in order to avoid unnecessary annoyance to the spell-check on my word processor, I have adopted British spelling conventions throughout (program with a double m and an e, enrolment with only one l, etc). I assure readers that this choice was dictated by convenience rather than any assumptions of innate superiority on the part of the forms employed!

Changes in British Higher Education

In recent years both the British and American educational systems have operated in political climates which have placed strenuous demands on institutions to demonstrate their worth and account for their share of national resources[1]. In the UK these demands have been accompanied by the most significant legislative changes for over forty years, which have affected all sectors of education. In brief, these changes have increased institutional autonomy, reduced local governmental controls, and further centralized public funding mechanisms. The latter are now based more explicitly than before on student numbers, expressed in full-time equivalents. Whilst critics of the Government can claim (with some justice) that these changes have been motivated more by a wish to reduce local, and increase central, government influence on the system as a means of controlling and restricting public expenditure, rather than having flowed from any clear educational mission, they have already had a dramatic impact. Although critical of specific aspects of policy, and resentful of curbs on overall expenditure, most senior college administrators have welcomed the key features of the reformed system. The changes are not at an end. Further legislation is promised and will no doubt quickly be placed on the statute book if John Major's Government is re-elected[2]. Polytechnics are to be allowed to call themselves universities, and to award their own degrees, abolishing a long criticised and confusing division within British HE. Further education colleges are to be removed from local government control and given corporate status, following the path taken by the polytechnics after the 1988 legislation.

The response of the system to these changes has already been impressive. Faced with increased competition for funding and worries about longer-term security, colleges have substantially increased enrolments. The polytechnics, in particular, have enjoyed dramatic improvements, against a background of unfavourable demographic trends

similar to those which apply in the USA. Advanced course admissions staff have been actively seeking to extend access to groups previously under-represented in British HE - especially working class, female, minority, and adult students.

Whilst undoubtedly fuelled by rising levels of unemployment in the last two years, overall these advances have made noticeable strides towards improved participation rates in post-secondary education - a trend almost unanimously accepted as being long overdue if Britain is to compete adequately in the modern world[3].

The Relevance of the American HE Experience

Access and Progression

These developments give greater relevance to the American experience of higher education. British commentators have long remarked on "the American belief in post-secondary education - the knowledge that they have a right to it"[4]. They have pointed to the features of the American system which encourage the ability to enter post-secondary education for a period, leave it, and go back later, progressing the while through a number of levels and institutions. These features include long standing credit accumulation and transfer (CAT) arrangements based around unitised curricula. Amongst other things this makes part-time and intermittent participation in HE much more feasible than in the traditional British system.

More and more British educators believe that they should look closely at aspects of the American system if the UK is ever to achieve similar patterns of access and progression. CAT schemes are already taking hold, especially in the polytechnics, and in vocational courses in the further education colleges. There has been a mushrooming of so-called 'franchise' arrangements whereby polytechnics wishing to increase student numbers beyond the limits of their current physical capacity are "licensing out" the first year of degree programmes to colleges of further education, to mutual benefit. Again this mirrors well-established American structures in the form of the links between two year and four year colleges. There is still a long way to go, but a start has been made.

Student Services

British visitors to the American system have also observed the importance to its operation of a range of student advice and support services, the like of which is still far less developed in the UK[5]. Admissions procedures, guidance through a programme, remedial help to get started or catch up, transfer advice, job placement - all seem much more up front. Connected with this, in my view, is the greater proportion of more professional and higher status administrators found amongst the staff of American institutions compared with those of the UK. The drive towards managerialism[6] in HE still has a way to go in Britain, and remains a controversial area amongst many faculty, as I recognise it still does to some in the US.

Management Information Systems and Market Research

Another corollary to the greater flexibility of the US system is the amount of student and management information which your colleges commonly collect, and the relative sophistication of the analysis to which it is then subjected, which informs decision-making across all areas of activity. British institutions have traditionally collected data to inform local and national funding and resource planning decisions. More recently they have begun to follow the pattern of American universities in developing MIS in order to monitor and evaluate effectiveness and efficiency. However, the application of MIS to market analysis is in most cases at only a rudimentary stage, despite the widespread acceptance by now of marketing as an appropriate discipline for UK college administrators[7]. 'Enrolment management' - a concept widely recognised and accepted by US college managers - is not yet understood or practised fully in the UK[8].

UK institutions are having to act more autonomously in an increasingly competitive environment. Yet, compared with most in the US, they lack the ability to segment their markets, to identify the key variables which influence enrolment decisions, and to target recruitment resources with any great efficiency. The development of these abilities is hampered in the UK by the relative secrecy and protectiveness with which local and central government, and other related agencies, traditionally guard their data. UK institutions therefore lack access to any national student database approaching the comprehensiveness and sophistication of the US College Board's Enrolment Planning Service. UK college recruitment efforts, therefore, are still largely shot-gun in their impact, rather than pin-point.

Cultivating the Alumni

On the subject of MIS, we in the UK have also examined with interest reports of American student tracking systems, which create and effectively utilise individual records right the way through from first enquiry to elderly alumni[9]. At a time of tight finance and increasing public questioning of their worth, British educators have looked with admiration and envy at the success of American colleges in cultivating their alumni for lobbying and fund-raising purposes. In a less well-resourced system, we in the UK have generally neglected the enormous potential of alumni, and to date only our most prestigious universities have had real success in maintaining mutually advantageous contact with past students.

Financial Aid

The desire to improve access to HE in the UK has also raised questions about our structure of financial aid to students. In the case of most full-time courses, tuition is provided free of charge, the costs being met by public funding directed to the colleges. For full-time advanced courses, grants, adjusted according to parental income, are paid by local government authorities directly to the students, in order to cover living costs. Unlike the US, there is therefore no tradition of institutionally directed financial aid to

students. Some of the champions of wider access have pointed to the high costs of achieving it provided the present system remains in place. They have also noted that our system inevitably concentrates relatively high levels of public expenditure on a small percentage of students who tend to be from families of above average income. The UK Government is in the process of replacing the system of student grants with one of loans. This is understandably unpopular for students, their parents, and many of the political left who see these moves as discouraging wider access. However, more politicians of all persuasions are arriving at the conclusion that a radical expansion in British higher education will not be financially viable unless there is a significant reduction in state-funded unit costs. Ways of achieving this could be to cut down on the length of courses (which are already shorter than in the US) and to encourage part-time study. Another - and more controversial one -would be to supplement reduced state funding for students by a system of better-targeted financial aid directed by the colleges, along American lines[10].

The Opportunity for US Educators

In all the aforementioned areas, American experience and expertise has relevance for the UK, and the current changes in our system present you with a window of opportunity. Not only is there the chance of broadening your horizons via the provision of guidance and help to your opposite numbers in Britain, with the gains in professional satisfaction which invariably accompany this kind of international co-operation. There are also commercial opportunities for training and consultancy in the appropriate skills and knowledge - despite our perennial shortage of funds! Increasingly UK college administrators will be seeking down-to-earth practical advice on the establishment of systems of credit accumulation and transfer and the efficient management of the enrolment procedures and records systems necessary to make them effective. For all these reasons my own college has recently entered into partnership in the UK, Ireland, continental Europe and Russia with Maguire Associates, Inc., the educational marketing and enrolment management consulting firm based in Concord, Ma. The title of this new entity will be Maguire Associates/Staff College, or MASC.

American college administrators steeped in the systems and procedures to which I have referred should find a ready audience in the UK - especially if they take the trouble to familiarise themselves with the idiosyncrasies of our post-secondary education scene, and can empathise with our circumstances. A word of warning. Many UK faculty still subscribe to the belief that 'more will mean worse' - that increased access and participation will inevitably undermine academic standards and, with that, public esteem. Our moves to widen access will benefit from the public support of US faculty connected with programmes which have gained international prestige and who can therefore supply the evidence that the key features of the American system are by no means incompatible with academic excellence.

The Strong Points of British HE

Having dealt with the export of your expertise, let me now turn to the complementary subject of imports. Here my conclusions are more tentative. It is always easier to pin-point those aspects of the system with which one is most familiar which can learn something from elsewhere. Nonetheless, my experiences lead me to believe that the following features of the British system are worth your close consideration.

Resource Management

Firstly, resource management. The silver lining in the cloud of a decade and more of restricted public expenditure is that British educators have made a virtue out of necessity and have become adept at squeezing more out of less. Institutional budgets have in any case traditionally been significantly lower than the usual for the US. The development of practical expertise in resource management has been assisted by a compensating aspect of what is normally regarded as one of the defects of our system relative to yours - our less professional and lower status administrative support staff, who make up a smaller proportion of total staffing. These circumstances force British faculty to become directly involved in resource management decisions. This has its down side, and many complain that they spend too little time teaching, and too much on petty administrative and clerical matters. Yet it has meant that decisions concerning the curriculum are invariably informed by a detailed awareness of resource implications. When goodwill is present, as it usually still is, the result is that the best possible curriculum solution is found within the available resources. Some would argue that tight resourcing has actually encouraged curriculum innovation, especially in the area of distance learning and the encouragement of self-study skills [11]. My impression is that with fewer resources British faculty have developed and maintained curricula which are generally more student-centred than in the US, particularly in the further education colleges and the polytechnics. One ironic spin-off from our Government sponsored increase in the numbers of college 'employer governors', which was intended to lead profligate educators to more business-like ways, has been the number of admiring comments from such individuals on what is achieved in colleges with so little! When 'mainstream' management researchers have turned their attention to education management they too have been impressed at the scale of the achievements when set against the paucity of resourcing [12]. Given the apparent reluctance of any major American politician (and British, for that matter) to campaign on a platform of improved public services paid for by higher taxation, these skills could become increasingly apposite on the other side of the Atlantic.

Entrepreneurship

Tight resources also spurred British colleges into entrepreneurial activities. Within mainstream HE there has been a marked growth in self-financing tailor-made training, research and consultancy, geared to the needs of corporate clients. Whilst still a minority area of provision inmost colleges, I know of no other nation whose public

sector HE system is so generally capable of speedy and flexible responses to the needs of commercial markets. A marked feature of the further education colleges and the polytechnics is the

significant numbers of their faculty who possess industrial experience. Whilst cultural differences between our two nations mean that adult Americans are more likely to seek vocational training on their own initiative, rather than at the behest of an employer, I am sure that the type of corporate marketing undertaken by the typical British polytechnic short course unit would repay your study.

Vocational Education

There are other aspects of vocational education which warrant examination. Both our countries could be argued to have similar problems in this respect - concern about the employment skills of our "bottom 70%" rather than the abilities of the "top 30%". News of your Labour Secretary Lynn Martin's report 'What Work Requires of Schools' made familiar reading in the UK, as did the conflicting reactions it aroused[13]. To a large extent this concern centres on standards in secondary education, rather than in HE. However, the distinctive strength of the further education colleges and the polytechnics has been employment-related education. I would be deceiving you if I tried to claim that vocational education in the UK now enjoyed parity of esteem with academic programmes. Yet it is the Government's stated intention to work towards this end[2]. New ordinary and advanced diplomas are to be introduced for high school leavers, achievable via both academic and vocational routes. The public profile of the further education colleges and the polytechnics has noticeably improved, and they are building up more positive media attention.

National Vocational Qualifications (NVQs) and Quality Control

The reform of post-secondary vocational education in the UK is based on the establishment of a system of National Vocational Qualifications (NVQs)[14]. The proliferation of unrelated existing qualifications is being harmonised into a coherent five level structure intended to facilitate access, transfer and progression. Standards are set by representative groups of employers for each main sector of employment. They are competence-based, so certification of an individual is on the basis of assessed employment-related abilities and is not tied to any given time or place of study. The criteria for qualification are framed so as to demand a substantial emphasis on work-related and work-based learning and assessment. Occupational sectors covered by NVQs now include management, and my own college is currently involved in the establishment of a pilot scheme leading to an NVQ for college administrators.

These reforms are controversial, but are proceeding with a great deal of political clout behind them. They have been criticised by some faculty for emphasising narrow job skills at the expense of a broader-based general education. They have also found more favour with employers in those sectors where entry to the job market was already effectively controlled by employer-led regulatory bodies. Within vocational education,

however, the main principles of NVQs have been welcomed. They have already stimulated considerable curriculum innovation, since the new system calls for colleges to assess and accredit an individual's prior experience and learning on entry, and to devise personalised programmes to provide the additional skills needed to achieve the desired level of NVQ. It also demands that vocational courses deliver much more realistic simulations of the real work environment, and provide for learning and assessment actually in the work place[15].

I have already noted that British colleges have been granted greater autonomy, and that further steps in this direction are pending. Yet by American standards we retain significant national standard setting and quality control mechanisms which place limits on the bounds of institutional self-regulation[16]. These features are even more apparent in parts of continental Europe. It may be that our different systems should sensibly converge, each adopting the best features of the other. Perhaps the maintenance of American public confidence that the nation can respond effectively to increasing global competition will demand some more coherent national structure of vocational qualifications in which employers have a stake and can feel confident. If this is the case, the British experience with NVQs offers a useful prototype.

International Harmonisation

The establishment of NVQs in Britain has been encouraged by the agreement to harmonise qualification credit transfer arrangements within the European Community, in line with the inauguration of the so-called "single market" from 1 January 1993. The European Centre for the Development of Vocational Education (CEDEFOP) in Berlin is carrying out technical comparisons among European qualifications. There are a number of other EC schemes which have stimulated the growth of inter-European links at institutional level, including COMETT (The Community Action Programme in Education and Training for Technology) and ERASMUS (The European Community Action Scheme for the Mobility of University Students)[17]. I know that many American colleges have a tradition of forging international links, and I suggest that in the future there will be a continuation of current steps towards a clearer understanding between different national systems and a greater transferability between them. Once again, the experience of British HE in developing a less parochial and more European outlook should offer some useful lessons.

Conclusion

In this paper, I have tried to convey my firm belief that continued contact between the British and American systems can only lead to their mutual enrichment. Legislative changes, as well as the ties of shared history and culture, are increasing the degree of similarity between the two, and I hope I have pointed you in the direction of some possible synergies. I must end, however, with a salutary reminder that in both our countries there seems to be greater public concern about the health of our respective systems than is the case with our major competitors, Japan and Germany. We can therefore expect a continued challenge to justify even the most cherished of our shared educational values.

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Using Diverse Reference Points to Inform Decision Making

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At the EAIR Conference (European Institutional Research) in Edinburgh, Scotland (September 1991), Sir William Taylor (President of EAIR and Vice-Chancellor of the University of Hull) addressing issues of quality assessment made the statement that the ultimate assurance of quality is conscience. He said that all the devices that are used to assess quality help primarily to strengthen personal commitment to quality. Looking at quality assessment from this perspective would suggest to us, as institutional researchers, that our primary goals should be to provide information in such a way that it truly connects the needs of students as customers with the conscience of decision makers.

However, assessing the needs of students and understanding the conscience of decision makers are formidable tasks. In connecting to the conscience of decision makers, we must look for ways to put information for reflection and inquiry within easy reach so that when the motivation and drive are there for decision makers, so too is the opportunity. We can sense when we are connecting with people in our reflections and when we are not. What informal methods would help faculty and administrators to connect with students and to test out ideas when both students and decision makers are ready to connect? Translating Pat Cross's ideas for faculty use of classroom research to administrative forums might help.

The idea of defining the student as customer and assessing student needs is elusive. Some faculty complain about student ratings of instruction because faculty think the evaluations are popularity contests, not thoughtful assessments focused on the primary goal of teaching and learning. To some extent this is accurate. When asked who they thought were excellent teachers, students told me they were those teachers who pushed them to edge of their understanding. What does this mean? Using the typical process-oriented questions on rating surveys, such as clarity of presentations or responsiveness to questions, would most students rate such an instructor highly?

We have a lot to learn about talking with students in non-technical terms about what their needs are, how they learn and grow best, and what institutional conditions are needed to foster their growth. We tend to look at students through the eyes of our functional roles. As a registrar, we might ask them "What did you think about the registration process?" rather than "Did you get registered for classes that fit with your academic goals?" The first question is much more tied to functions we can control, but

students may not relate to these functions with any useful degree of specificity. The second question focuses on the outcome of these functions in which students are most interested. As a director of student programs, we might ask of students who dropped out of the rush procedures (within the Greek system) "What was the impact of rush on your academic and social life?" rather than "How do you think you will get your social and friendship needs met now that you have dropped out of rush, and how did you conclude you would not have these needs met within the Greek system?" In these examples, the issue is how we focus our reflections in terms of their impact on what students think and do, rather than scaling their evaluations of our technical contributions.

So what have we done at Syracuse to connect with the conscience of faculty and administrators and to identify the needs of students? Although we did not start this process with Total Quality Management (TQM) as our guide, many of the attributes of TQM help to describe our approach. Some of these attributes are: teamwork, continuous improvement (i.e., plan-do-check-act), and customer focus. These attributes might be thought of as the diverse reference points of staff (teamwork), events (continuous improvement), and customers. With the appointment of a new chancellor this fall, we have begun to address the values that represent our institution over time, and we have begun to look at TQM as a structure that will help us to define our values and measure our efforts in terms of those values.

Teamwork

All of our campus wide studies now begin with our Campus Study Executive Group. This group is composed of senior administrators within a variety of functional areas at the University, such as Student Affairs, Admissions, Undergraduate Studies, Physical Plant, and selected faculty who meet four to six times a year. The communication in these meetings helps to define issues that have a more grounded and universal focus on the needs of a diverse community and student body. Much of our effort in this group is in team building so that these people will be comfortable in sharing their perspectives and critique regarding their viewpoints and perceptions.

A Campus Study Work Group composed of institutional researchers and middle management staff meets periodically to develop new instrumentation in the form of surveys, focus groups, and institutional data analysis. This group also critiques reporting mechanisms designed to ensure that decision makers have accessible information. The leadership makeup of the focus groups has also facilitated teamwork. Each focus group is led by a three or four member team that includes senior and middle management administrators, faculty, and institutional researchers. Staff from these diverse reference points interact together with students, compare and contrast their perspectives with students and later with each other during the reporting period. Focus group topics are discussed below.

Continuous Improvement

The TQM "plan-do-check-act" cycle of continuous improvement has been an operating principle of our Campus Study Executive Group, and the group is watchful of the potential trap of assessment without action. Several programs have been initiated as a result of or in conjunction with our Campus Study efforts. These programs include:

1. "Gateway" courses that receive special recognition and resources to make the initial course experiences of first year students more positive.

2. The "College of Arts and Sciences and Honors Program Freshmen Seminars" that provide course credit for a small group learning experience for first year students, with faculty addressing freshmen issues using an intellectual and interpersonal approach.

3. Freshmen Advocacy Network (FAN) that connects first year students in our management and communication schools with an administrator who meets with them periodically to provide assistance and support.

4. The Early Alert System which identifies first year students in Gateway courses and in residence halls who are at risk and having trouble adjusting. This system reports to academic and student affairs staff where and how these students are having trouble, and what is being done to help.

5. First Year Orientation Program has been revived so that it is now supervised by our Admissions Office, and all University events and school/college specific events have been strengthened. Students and parents now rate this program very positively.

6. Summer Bridge Program has been added to address a greater variety of minority students in a six week program to prepare them for college work. Approximately 80 students who are not considered educationally and financially disadvantaged by federal funding standards have been added to our Summer Institute Program.

Many other programs have been initiated at the college and program level to help students become stronger. Our focus groups and surveys, and institutional data analysis procedures have been adopted at specific college and program levels to get a better sense of the needs of students and how faculty and administrators can respond to those needs.

To create this continuous improvement climate, we have consistently instituted explorative assessment methods that address current issues and connect students with administrators. Our focus group topics exemplify this as listed below.

1. Fall 1989-90 "Alternatives to M Street" ('M Street' is our student night life area) addressed an overdependence on alcohol related events to get students involved and resulted in a much more diversified set of social and cultural opportunities on campus. This is not to say that problems with alcohol have disappeared; we still need to focus on this issue with incoming classes.

2. Winter 1989-90 "Academic Advising and Contact with Faculty" addressed the lack of support for students in academic advising, and the desire for students to have more informal contact with faculty. A much more extensive undergraduate advising system is being considered as a result of this effort.

3. Spring 1990 "Looking Back at Your First Year - Recommendations" asked students to reflect on their experiences and make recommendations to new students coming in the following fall, and to faculty and administrators in considering improvements to programs.

4. Fall 1990-91 "Expectations of College and the First Year" looked at how expectations vary by the gender and ethnicity of students and provided useful information regarding the special support needs of various groups.

5. Winter 1990-91 "Strengthening Campus Community" called together students within their colleges to explore how the community supports them as individuals and within small groups, and what identity they have with the University as a whole. We found considerable differences among our various colleges in how students perceive their role in the community.

6. Spring 1991 "Role of Student Leaders" investigated how we can provide support to our student leaders in their understanding and responses to first year student needs. We found a need to work together more closely in developing and supporting student leaders.

These focus groups have provided considerable information that defines the needs of students and connects these needs with the conscience of administrators. This is done by including faculty and staff with diverse perspectives in discussions with students about their attitudes and behaviors related to current and active issues.

With our many assessment efforts (see Appendix C) we are careful to ask and report results for open ended questions because they encourage students to address current and new issues as they see them. They also connect with the thought processes of administrators better, in some ways, than tables containing the results of closed ended questions. We report them in such a way that administrators can focus on the

students that interest them most. Appendices A- 1 through A-4 contain an example of one type of report where we distributed the comments of students on our "Student Perceptions of Student Life" survey to faculty and staff in our College of Arts and Sciences. This type of report reviews what our students want to express independently of the specific questions we ask, and it attempts to connect this to the conscience of our staff, in that they look at responses for students they are most concerned about. One of the comments in Appendix A-4 points to a difficult problem that students within some of our ethnic groups face: "I have tried to get involved with two major ethnic organizations...but they have proven not to kindle any real interest or enthusiasm." Specifically, we know from focus groups that many Asian-Pacific Americans wish their student run organizations were more active and diversified in their efforts. The substance of the particular open ended question in Appendix A-4 shows an attempt to connect students and staff where we ask "What have you done to make your experience at SU a success?" We ask this question to focus on student outcomes and on the partnership of students and faculty/staff in ensuring their success.

To ensure a higher likelihood of finding useful information from our closed ended survey questions we attempt to build in useful structures (as can be seen in Appendix B-l). We ask involvement and satisfaction questions in the areas of personal-social, cultural/social, academic in-class, and academic/out of class activities. We find that students respond in a more informative way to involvement questions because their experiences are indeed different. We also find their responses to satisfaction questions to be far less varied as their perceptions are affected by image and public opinion, perhaps most strongly influenced by our student newspaper. By using a strong structure in our questions, we have found that satisfaction as an outcome is less informative than involvement. In Appendix B-2, we report involvement subscale scores for various ethnic groups to convey, in a summative way, the differences between groups. In this example, we find African-, Hispanic-, and Puerto Rican-Americans more involved on our campus than Asian/Pacific-Americans or Caucasians. Appendix B-3 looks at ethnic differences for selected questions where those differences were significant. Looking at contrasts like this graphically by gender, ethnicity, and college builds a much stronger connection between the needs of our students and the conscience of our administrators.

Another approach that has helped connect student needs with the conscience of decision makers is the focus upon the study of retention and attendance patterns as our ultimate student outcome. Retention issues cut across institutional contexts such as colleges and ethnic groups very effectively. In a private institution it is the outcome that no one can argue with in terms of its importance. An article titled "Deconstructing Social Theory: Translating Research on Student Persistence into Policy" by Tinto and Froh looks at the relationship between involvement, satisfaction, and commitment outcomes and the ultimate outcome of retention. One example of the power of the focus on this retention outcome arises from an interview of leavers conducted in 1990. We found that about twenty five percent of our students leave not because they are not performing well enough generally, but because they are not performing well enough for the investment in private school tuition. As a result, they and their parents decided to go to a local community college or public university given this insufficient level of

performance. This suggests that a primary focus for our institution has to be to support academic performance at a level students and parents consider satisfactory for the investment.

With the coming of our new chancellor, we are now beginning to focus our assessment findings and future plans into what the chancellor calls the institution's five principal values: quality, caring, diversity, innovation and service. He states these values "allow us to measure ourselves against our own standards." We are currently reviewing our study findings to determine how these findings provide a direction in what we need to work on in the five value areas. Specific to the value of diversity, our findings tell us that Asian/Pacific-American students need more specific support from their student organizations and therefore we must work to establish the conditions where their student organizations can flourish. With regard to caring, we know our students have indicated that as they proceed through their four years they find the institution increasingly less responsive. We must work with our seniors to understand this issue and to improve our efforts.

Here we return to Sir William Taylor's comment that the ultimate assurance of quality is conscience, and that all the devices used to assess quality help primarily to strengthen personal commitment to quality. As institutional researchers we can work to set the conditions that ensure quality. We need to use diverse reference points (i.e. faculty/staff teamwork, continuous improvement of events, and various student customer groups) to inform decision making. We need to use focus groups, careful analysis of open ended responses to surveys, and careful development and analysis of survey structures to present information on student outcomes in ways that can appeal to the conscience of decision makers. Finally, we need a vision in terms of institutional values through which we can use assessment to measure ourselves. This relates closely to the tenets of TQM and how we must pay attention to how as institutional researchers we can help faculty and the staff to incorporate the substance of TQM in their assessment efforts.

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APPENDICES

Draft 3/18/91

Student Perceptions of Student Life - Fall 1990
Explanation of Sorted Open Ended Responses

Appendix A-1

The open ended responses which follow have been coded to allow the reader to identify the gender, class, ethnicity, campus living area and college of each respondant. A key to these codes is given below.

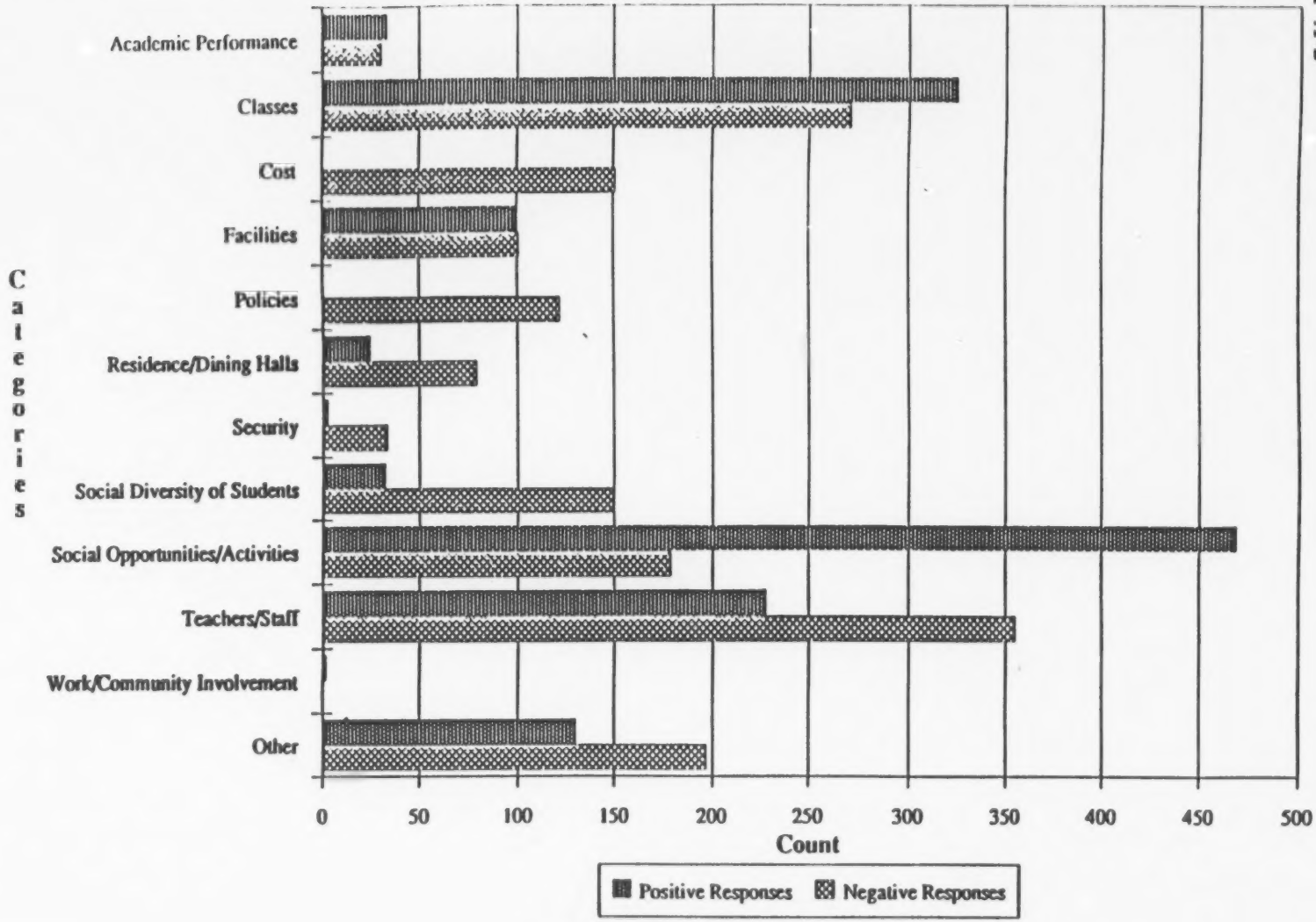
Example:

F Fr C N A&S I have recently joined a student group.

- A&S: School or College.
- N: Campus: (N)orth / (S)outh / (O)ff.
- C: Ethnicity: (A)sian-Pacific / (B)lack / (C)aucasian / (H)ispanic (M)exican-American / (N)ative-American / (P)uerto-Rican / (?) Other.
- Fr: Class: (Fr)eshman / (So)phomore / (Jr) Junior / (Sr) Senior.
- F: Gender: (M)ale / (F)emale.

Appendix A-2

Student Perception of Student Life - Fall 1990
Summary of Open Ended Responses



(OER/TS)

Total Number of Responses - 3,019

3/18/91

Draft 3/18/91

Student Perceptions of Student Life - Fall 1990

Appendix A-3Open Ended Response Categories Organized by Percentage of Total Responses

Positive Experiences/Satisfaction with Syracuse University

Category	% of Total*	Sub Topics
Social Opportunities/Activities	15.5%	Varied, Readily Available
Classes	10.8%	Informative, Challenging,Varied
Teachers/Staff	7.6%	Responsive, Helpful, Knowledgeable, Friendly
Other	4.3%	Community, Atmosphere
Facilities	3.3%	Convenient, Organized, Varied
Social Diversity of Students	1.1%	Varied Cultures and Ethnic Groups
Academic Performance	1.1%	Personal Achievements, Expectations
Residence/Dining Halls	0.8%	Convenient, Good Atmosphere, Good Food
Security	0.1%	Responsive, Efficient
Work/Community Involvement	0.1%	Satisfying, Variety

Negative Experiences/Dissatisfaction with Syracuse University

Category	% of Total*	Sub Topics
Teachers/Staff	11.8%	Unavailable, Non-English Speaking, Unconcerned
Classes	9.0%	Too Big, Impersonal, Boring, No Variety
Other	6.5%	Student and Administrative Attitudes
Social Opportunities/Activities	5.9%	Not Diverse, Unavailable, Too Greek-Oriented
Social Diversity of Students	5.0%	Racism, Segregation, Personal Relationships
Cost	5.0%	Tuition, Supplies, Food, Sporting Events Too Expensive
Policies	4.0%	Restrictions, Student Ticket Purchases, Logo
Facilities	3.3%	Unkept, Inconvenient, Not Well Equipped
Residence/Dining Halls	2.6%	Unkempt, Inconvenient, Poor Quality Of Food
Security	1.1%	Inadequate, Unresponsive
Academic Performance	1.0%	Poor Grades, General Academic Disappointments

* A total of 3019 verbatim responses were recorded.

(OER/TS) 3/18/91

Appendix A-4 STUDENT PERCEPTIONS OF STUDENT LIFE 1990
COMMENTS FROM THE COLLEGE OF ARTS & SCIENCES

QUESTION: What have you done to make your experience at S.U. a success?
RESPONSE CATEGORY: Joined organizations, got involved.

F Fr ? N A&S	Become involved in extracurricular activities.
M Fr ? N A&S	Sign for ROTC.
F Fr A N A&S	Keep busy, getting off campus once in a while.
F Fr A N A&S	Joined clubs I'm interested in and take leading roles in those clubs I'm especially interested in.
F Fr P N A&S	I have tried to get involved with the two major ethnic organizations here on campus, HAS and SAS, but they have proven not to kindle any real interest or enthusiasm.
F Fr P N A&S	Weekends are mostly spent dancing or doing other things with my friends, e.g., movies, parties, Underground.
M Fr H N A&S	I have gone to many events just for the experience.
F Fr C N A&S	I have gotten involved in different activities.
F Fr C N A&S	I have made the most of every minute at S.U.
F Fr C N A&S	Joined the band and rushed a sorority (I'm pledging now).
F Fr C N A&S	Get involved with as many programs and friends as possible.
F Fr C N A&S	Joined Hall Council and RHA.
F Fr C N A&S	Reporter for Sun-up (UUTV).
F Fr C N A&S	Pledging a sorority.
F Fr C N A&S	I have participated in campus activities and I am very active.
F Fr C N A&S	Sought out activities.
F Fr C N A&S	I have become involved! I am a reporter at UUTV, a member of Hall council, I work for a professor on campus and I participated in Kindergarten Mania.
F Fr C N A&S	I have joined groups outside of just going to class. This way I learn all the time.
F Fr C N A&S	I have made an effort to get involved in some activities that I like.
M Fr C N A&S	Tried to get involved with activities.
M Fr C N A&S	I have taken it upon myself to get involved with the school as much as possible.
M Fr C N A&S	Have been really social.
F So ? O A&S	Try to take advantage of everything that is offered.
F So ? N A&S	Advocated that I believe in and protested that which I've had problems with.
F So ? N A&S	Been active in social/recreational aspects.
F So ? N A&S	I've participated in as many things as I could afford to that I'm interested in.
M So ? N A&S	Go to the Dome.
M So ? N A&S	Join a fraternity.
M So ? N A&S	Get involved with groups which has made me learn about myself and others.
F So B N A&S	I have attended lectures held by various student groups and have become involved in a variety of different student groups.
F So B N A&S	Sought out all supportive services, just used all or close to all of the resources I have on this campus.
F So P O A&S	I am very involved in a student organization. This gives me the opportunity to meet a lot of people and get acquainted with facilities in the University I wouldn't have known otherwise.

Student Perceptions of Student Life - 1990
Survey Items

Involvement*

Personal / Social

1. Discussed important issues with students holding viewpoints different from your own.
2. Made efforts to get acquainted with students having different racial or ethnic backgrounds.
3. Sought help with a personal problem from a friend or acquaintance.
4. Discussed career plans and ambitions with University staff or faculty.
5. Sought out information to improve your personal safety.
6. Used personal support services (e.g. counseling).
11. Went out with other students for recreational or social activities.

Cultural / Social

7. Referred to campus newspapers and advertisements to find information about campus events.
8. Attended social or cultural events put on by student groups.
9. Attended speeches or presentations on topics of interest to you.
10. Helped to organize an activity or event.

Academic / In Class

12. Participated in class discussions.
13. Met with other students to work on class-related projects or assignments.
14. Asked your instructors questions regarding course material you did not understand.
15. Talked with your instructors regarding course-related issues.

Academic / Out of Class Life

16. Sought advice regarding what courses would be most appropriate in your academic plans.
17. Used library facilities and / or staff to obtain information related to academic work or interests.
18. Talked informally with faculty outside of class time.
19. Sought tutoring or individual help with difficult course material.
20. Used academic support services (e.g. advising / tutoring).

Additional Involvement Items

1. Approximately how many hours per week do you typically spend studying?
   0-5 6-10 11-20 21-30 >30
2. Approximately how many hours per week did you work at a part time job?
   Zero 1-6 7-12 13-20 >20
3. Are you a member of a student group? Yes No

*Involvement Scale:

Never	Occasionally	Often	Very Often
1	2	3	4

(OER/TS)

Satisfaction*

Personal / Social

1. Interactions with students holding viewpoints different from your own.
2. Opportunity to get acquainted with students of other racial or ethnic backgrounds.
3. Opportunity to meet people and make friends.
4. Campus support services (e.g. counseling / tutoring).
5. Campus security and your personal, physical safety.
6. Health-related services and programs.
7. Career planning services and programs.

Cultural / Social

8. Information promoting campus events.
9. Programs or events sponsored by student groups.
10. All campus orientation program (for freshmen only).
11. Involvement with campus decision making.
12. Social / cultural events on campus.
13. Availability of information about student organizations.
14. University publications describing programs and services.
15. Recreational facilities and programs.
26. Your residence hall facilities.
27. Life in your residence hall.

Academic / In Class

21. Classroom / laboratory / studio facilities.
22. Classes / instructors.
23. Feedback from instructors about your academic progress.
24. Response of your instructors to your questions.
25. Your intellectual development.

Academic / Out of Class

16. Academic advising provided by your home college or school.
17. Library facilities for study and research.
18. Contact with faculty outside of class time.
19. Computing resources and support.
20. General space for studying.

Other (Not included in subscale analysis)

28. The registration process.

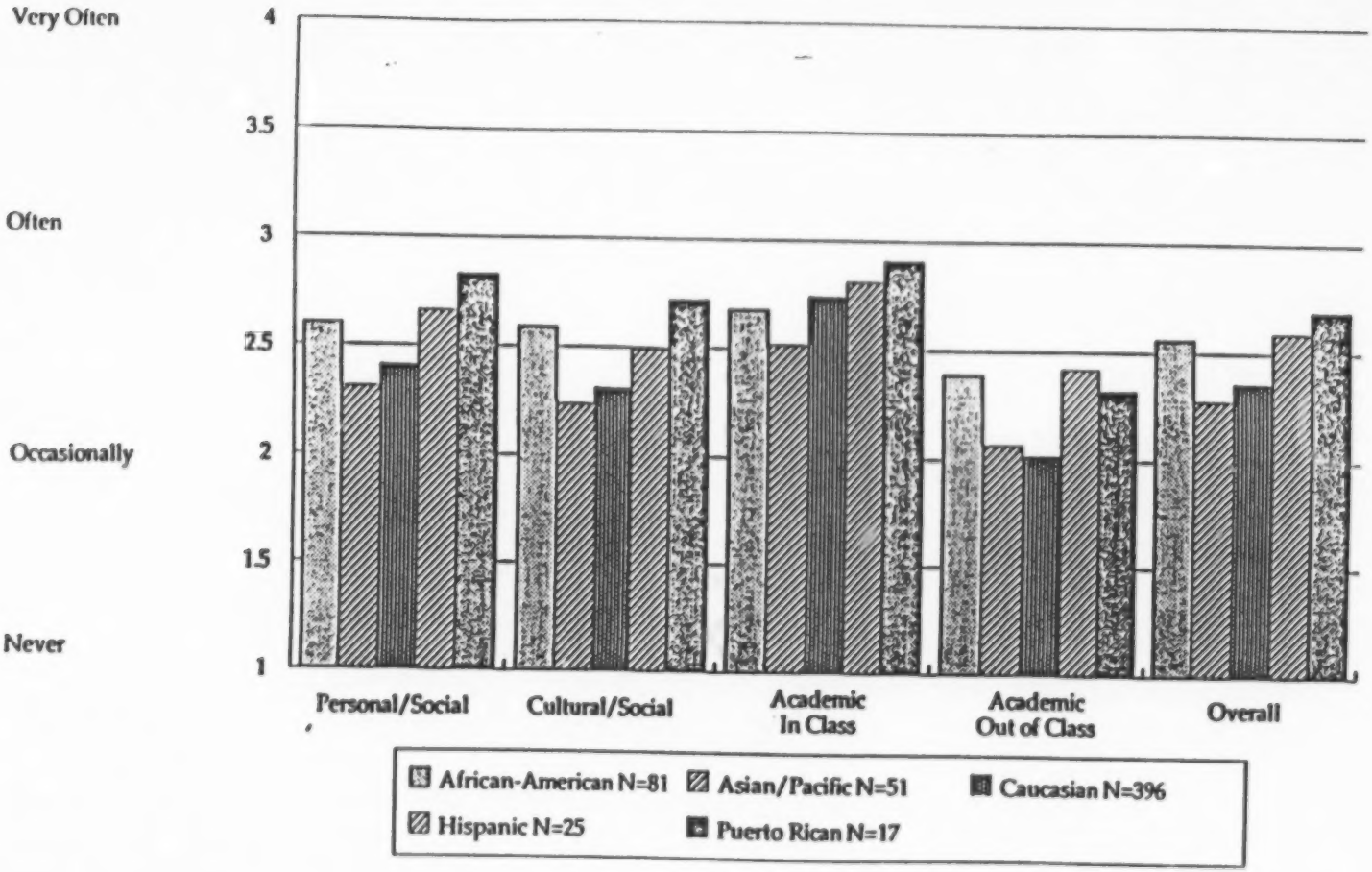
*Satisfaction Scale:

No Recent Experience	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
0	1	2	3	4

1/30/91

Appendix B-2

Student Perceptions of Student Life 1990
Involvement Subscales by Ethnicity



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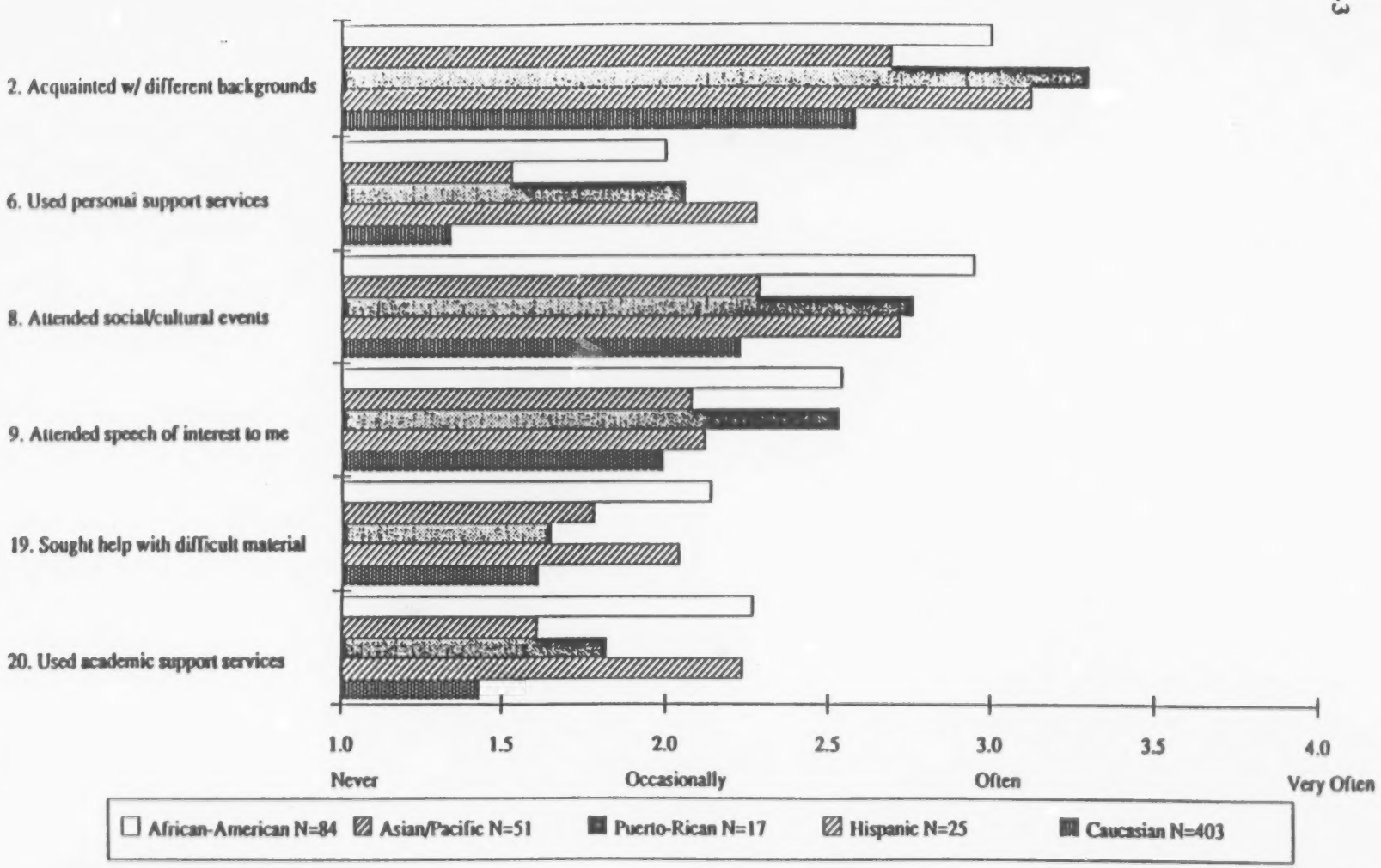
Appendix B-3

Student Perceptions of Student Life - 1990
Involvement Items Significantly Different (p < .001)
By Ethnicity



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Appendix C

CAMPUS STUDIES OVERVIEW
1991-92

To date we have conducted the following coordinated studies.

- All Student Perceptions of Student Life Survey (SPSL)
  Fall 1989 and Fall 1990
- First Year Experience Survey
  Spring 1990 and Spring 1991
- First Year Student Focus Groups
  Fall, Winter, and Spring 1989-1991
- Exit Interview Survey
  Spring 1991; Summer 1991
- Early Alert Study
  Fall 1990 and Spring 1991
- Interview of Leavers Study
  Spring 1990 and Fall 1990

Other studies, such as the Retention and Attrition study, the Graduate Student survey, the South Campus survey, and the Student Perceptions of Registration study, have also been conducted for members of the Campus Study Executive Committee. When appropriate the results of these studies have been integrated with the other coordinated studies.

Interdisciplinary Approach to Science Education

* Gin K. Gee
Professor of Biology

Marion Walker
Research Analyst

Corning Community College

Introduction

The development of the integrated science course was based on five goals:

1. To improve the instructional methods for nursing students.
2. To streamline the basic science courses to dovetail with the nursing courses.
3. To sequence and inter-relate scientific topics.
4. To provide for remediation and drill.
5. To cope with students with different backgrounds, age, ability, culture, race and sex.

The course was developed in 1975 to serve the science needs of nursing students. It is a composite course of selected and integrated topics from biology, chemistry, anatomy, physiology and microbiology. It is a ten credit hour course divided into two semester sequences known as SC123 and SC124, and is team-taught by professors of anatomy and physiology, microbiology and chemistry. The nursing program at this college is a two year program, and the students take SC123 concurrent with Nursing I in the first semester and SC124 with Nursing II in the second semester of their freshman year. Tables 1 and 2 show the contents of SC123 and Nursing I, and SC124 and Nursing II respectively.

During the time of course development, the challenge was to integrate the subject matter, then cognitively map the student population (Wesley, 1990), and present the course using multi-media, microcomputer assisted instruction, remediation, small group recitation, review and traditional lecture for a large group of 100-125 students.

The course includes the following:

A. Three one-hour per week large group sessions for lecture, films, special topics, demonstrations, experiments, speakers, and major examinations.

B. An open audio-tutorial learning laboratory with sixteen student stations and various projects, demonstrations, charts, model and other activity areas. The laboratory is equipped for wet lab experiments, dissections and microbiology lab exercises as well. The learning lab is open thirty-five hours a week.

Table 1

Table of Contents for Integrated Science SC123

UNIT 1 - **Generalized** animal and plant cell
Microscope and generalized cell lab
UNIT 2 - **Introduction** to microbiology
Bacterial anatomy and lab exercise
UNIT 3 - **Inorganic** chemistry
Inorganic chemistry lab
UNIT 4 - **Cell membrane** and cellular transport
Cell membrane lab exercise
UNIT 5 - **Organic** families
Organic chemistry lab exercise
UNIT 6 - **Proteins** and enzymes
Proteins and enzymes lab exercise
UNIT 7 - **Carbohydrates** and lipids
Carbohydrates and lipids lab exercise
UNIT 8 - **Glycolysis** and Krebs cycle
Glycolysis and Krebs cycle lab exercise
UNIT 9 - **Cultivation** of microorganisms
Microbial cultivation lab exercise
UNIT 10 - **Microbial** control
Microbial control lab exercise
UNIT 11 - **Nucleic** acids
Nucleic acids lab exercise
UNIT 12 - **Genetics**
Genetic lab exercise
UNIT 13 - **Reproduction**
Reproduction lab exercise
UNIT 14 - **Embryology**
Embryology lab exercise

NURSING I - NU105

Introduces selected components of Maslow's Hierarchy of Human Needs. The normal needs of healthy individuals are studied throughout the major age groups. The concept of the health-illness continuum is explored. Nursing is presented as a helping relationship. Knowledge and skills appropriate for the beginning nurse to utilize in meeting the needs of individuals are introduced.

(8cr. hrs.) (Fall). Prerequisite: One year high school algebra and biology or college equivalent, and be taking or have taken Integrated Science, or instructor consent. Lecture, Small Assembly Sessions, hospital and/or campus laboratories. Labs will be assigned during day and evening hours. A grade of C or higher is required to continue in the program; satisfactory and safe performance in the lab is required to pass the cause.

Table 2

Table of Contents for Integrated Science SC124

UNIT 1 -	**Introduction** to body tissue
	Lab exercise
UNIT 2 -	**Blood**
	Lab exercise
UNIT 3 -	**Body defenses**
	Lab exercise
UNIT 4 -	**Infectious** disease
	Lab exercise
UNIT 5 -	**Skeletal** system
	Lab exercise
UNIT 6 -	**Muscular** system
	Lab exercise
UNIT 7 -	**Nervous** system
	Lab exercise
UNIT 8 -	**Eye** and Ear
	Lab exercise
UNIT 9 -	**Endocrine** system
	Lab exercise
UNIT 10 -	**Circulation**
	Lab exercise
UNIT 11 -	**Respiration**
	Lab exercise
UNIT 12 -	**Respiratory** disease
	Lab exercise
UNIT 13 -	**Digestion**
	Lab exercise
UNIT 14 -	**Food and waterborne** disease
	Lab exercise
UNIT 15 -	**Kidney function**
	Lab exercise

NURSING II - NU106

The Nursing process format is used to present threats to needs for comfort, rest and sleep, physical and psychological safety, love and belonging, and self-esteem to individuals of various age groups. Common nursing actions utilized to assist individuals to cope with these threats are developed. It builds on previously acquired skills and knowledge. Health problems commonly occurring across the age span are emphasized.

(8cr. hrs.)(Spring). Prerequisite: NU105 or equivalent. Be taking or have taken Integrated Science, or have instructor consent. Lecture, Small Assembly Sessions, hospital and/or campus laboratories. Labs will be assigned during day and evening hours. A grade of C or higher is required to continue in the program; satisfactory and safe performance in the lab is required to pass the course.

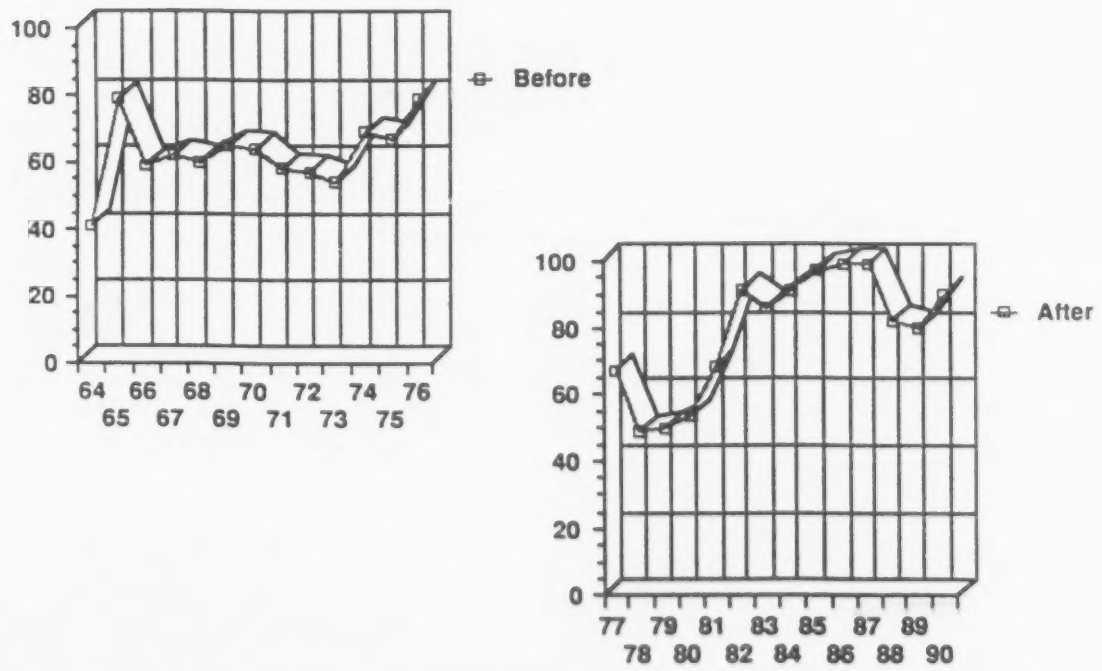
C. A weekly one hour recitation/quiz session dealing with the preceding week's objectives and learning exercises, restricted to sixteen students to promote discussion.

Evidence of Success

Statistics were obtained from the New York State Department of Education (NYS Ed., 1990). In our studies the criteria for success is the percent of students passing the New York State Nursing Boards on the first attempt both before and after the introduction of integrated science in 1975. Figure 1 shows the percent of students who passed the State Boards before (1964-1976) and after the introduction of the integrated science (1977-1990). 1977 represents the results of the first class completion of SC123 and SC124. It is evident that the passing rate has generally increased since the introduction of integrated science.

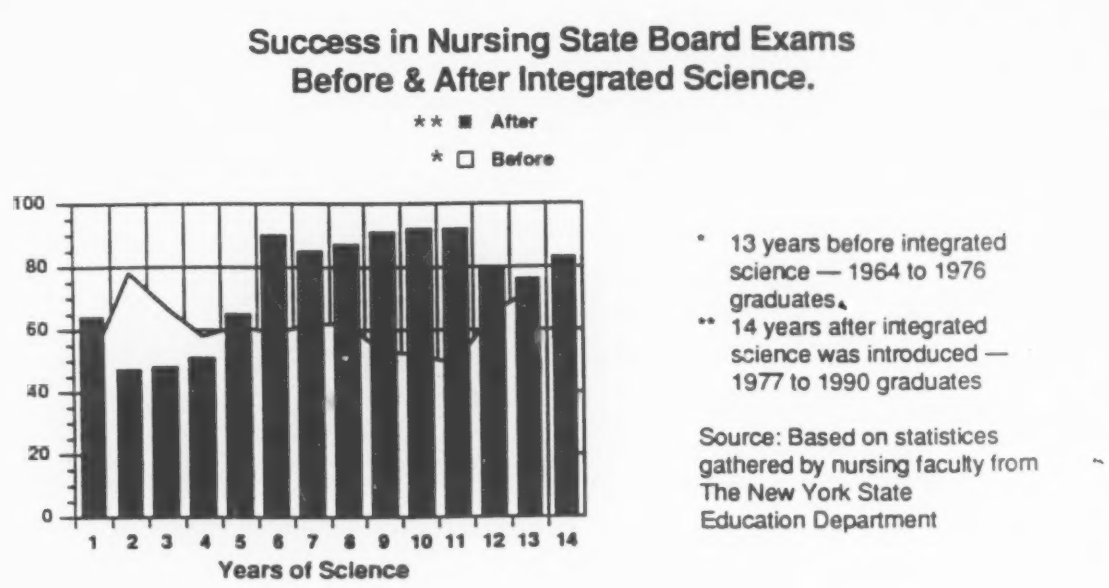
Figure 1

Nursing Students Who Passed State Board Exams First Time Before & After CCC Introduced Integrated Science.



This shows more clearly in Figure 2 where the years after integrated science are superimposed over the results of the years before the course was given.

Figure 2


Success in Nursing State Board Exams
Before & After Integrated Science.
** After
* Before
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Years of Science
* 13 years before integrated science — 1964 to 1976 graduates.
** 14 years after integrated science was introduced — 1977 to 1990 graduates
Source: Based on statistices gathered by nursing faculty from The New York State Education Department

Data were collected from New York State Department of Education in order to show comparisons in the percentage of students who passed the State Boards nursing exams between Corning Community College (CCC) students and other institutions (Table 3.)

Table 3

Candidates who Took The State Boards and Percentage Passing on First Attempt

Year	CCC		Other Comm.Coll.		Universities		Hospital/Diploma	
	N	% Passed	N	% Passed	N	% Passed	N	% Passed
1983	67	85	3539	84	2070	81	704	88
1984	62	90	3535	87	2055	80	748	91
1985	53	89	3664	87	1930	33	667	90
1986	59	98	3658	88	1960	84	625	91
1987	42	98	3403	86	1819	83	609	87
1988	26	85	3233	77	1546	71	398	79
1989	40	75	3182	77	1309	65	260	82
1990	40	84	3129	84	1128	73	263	86

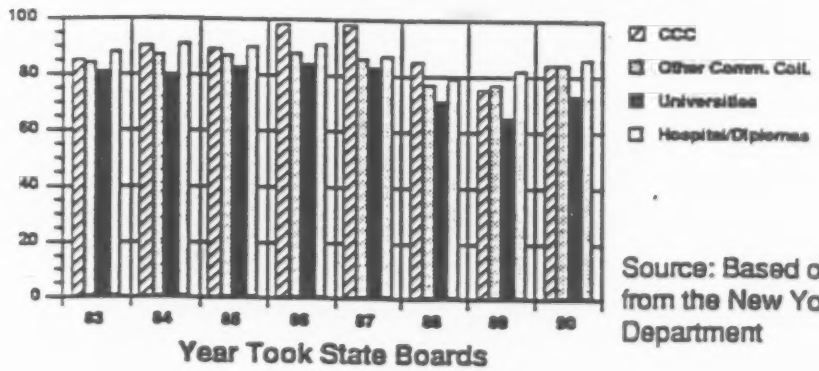
Figure 3 shows the eight year success rate, in graphic form, of students passing the New York State Nursing Boards on the first attempt from 1983-1990 in four categories of institutions: Corning Community College; all other community colleges; baccalaureate degree programs; and hospital diploma programs. The data show that for a period of eight years, Corning Community College excelled the baccalaureate students; the other New York

community colleges for six out of eight years. The hospital/diploma programs excelled the Corning Community College students in 5 out of the 8 years. While there is no data to account for the latter, an explanation may be that the hospital/diploma program exposes the student to more clinical experiences in the 3 years versus 2 year programs at community colleges. Also along the way there might have been changes in the requirements of the New York State Boards.

Recent data on the 1991 nursing student graduates showed a one percent increase in passing the New York State Boards. It is also worth noting that 38% of Corning students take board exams in other states, principally in Pennsylvania. Overall Corning Community College passing rate for 1991 students was 96%.

Figure 3

8-Year Trends of Percent of Candidates Who Passed State Boards First Time



Source: Based on statistics obtained from the New York State Education Department

Figure 3 also shows that when Corning Community College's success rate was low in 1988 and 1989, such rate was equally low for all other institutions. It could be that during this period there was a drop of nursing enrollment due to the fear of AIDS and poor salaries and did not attract the better more qualified students causing the passing rate to drop. In 1990 enrollment is beginning to increase again, due to higher salaries often attracting the better qualified students.

The following are the responses to the questions asked of the nursing faculty in regard to the Integrated Science course for the nursing program at Corning Community College:

1) **How has Integrated Science served nursing education at Corning Community College?**

"It covers all essential science information."

"The content that is being presented in science applies appropriately to the content being presented at the same time in nursing lectures."

"The depth and degree of difficulty in Integrated Science is sufficient for nursing students. If they have a C grade or higher they can relate that information in their nursing courses."

2) **Would it be detrimental to the nursing program if Integrated Science was not offered?**

"Yes. The nursing program is difficult and time consuming. Integrated Science enables the students to complete the science requirement during the first year."

"It would be impossible with the time requirement to complete the program in two years."

3) **Would it be detrimental to our nursing students if Integrated Science was not offered?**

"Separate sciences may seem overwhelming to a student, especially our older students who have been out of school for some time. I would like to see a science transfer credit."

"Some students would be discouraged if they were required to take three sciences. It would be much more difficult to complete the program."

Table 4 shows the results of a questionnaire given to the current students to assess their perceptions as to the value of Integrated Science in their nursing education. The students' responses show their opinions of those aspects of the course they found to be most important. They are depicted according to the order of importance in the Table.

Table 4

Why Students Felt Integrated Science Was Valuable

Average Responses on 12 Items of Why Students Felt Integrated Science Was Valuable
(Scale 1 to 5, 1 = least value, 5 = most value)

Item	N	Mean	Standard Deviation
• Relevance to study of the human body	101	4.60	.75
• Early integration of Anatomy & Physiology, Microbiology and Chemistry	100	4.50	.81
• Equip Students with laboratory skills that can be used in a clinical environment	100	4.32	.84
• Provide foundation & references for nursing courses	99	4.30	.85
• Course objective guided student to outcomes useful in nursing practices	101	4.24	.93
• Multimedia approach	100	4.17	.93
• Team taught	97	4.12	.97
• Give fundamental knowledge which can be employed in nursing care	99	4.11	.96
• The course synchronizes well with the first year nursing courses	94	4.08	1.08
• Saves time and money	101	4.05	1.27
• Don't have to take separate courses	100	3.92	1.31
• Attempts to build confidence	98	3.81	1.17

Discussion

As far as we know Corning Community College is the only college offering integrated science for nursing programs in New York. The adoption of integrated science into the nursing program resulted in a number of advantages which are measurable in terms of time and money saving and success in passing the State Board Exam. The survey reflects the advantages in that the students find integrated science valuable because it quickly shows the interaction of chemistry, anatomy, physiology and microbiology in health and diseases without waiting for the completion of separate courses. It is interesting to note that "saving time and money" was not a critical factor for the students to choose the course (Table 4). The nursing faculty is satisfied with the cause as supported by their comments.

(The students who select integrated science are advised that the course is not transferable and that they should take separate sciences if they plan to transfer for BS degree in nursing, About 95% of nursing students take integrated science.)

It has been disappointing in the past that integrated science has not been transferable to baccalaureate degree colleges and universities. In most cases the transferring student has been given 10 elective credits, but has had to take Chemistry, anatomy, physiology, and microbiology again in order to work for a baccalaureate degree in nursing. The expenditure of time and money discourages the student from pursuing a higher degree.

However, recently the State University of New York at Binghamton, Syracuse University and Keuka College have accepted Integrated Science as fulfilling the Anatomy and Physiology requirement and in some cases Microbiology. Each college has different requirements for Chemistry. This is rewarding and indicates a trend that educators are receptive to the integrated approach.

In an article appearing in "Issues in Integrative Studies" publication, Jordan (1988) pointed out that "interdisciplinary interaction has primarily been the province of sociologists and philosophers. It is time to remove the blinkers off disciplinary autonomy and to search for ' new and overlooked combinations' in the sciences." Rossini et al (1986) attempted to integrate biomedical science. The reluctance and resistance of developing and teaching interdisciplinary and integrative courses on the part of the college faculty have also been voiced by Bailis (1990).

Contrary to the academic community, industries promote interdisciplinary education and training. Garry of G.E. (1986) wrote: "all of us would like to see more interdisciplinary skills in new graduates." Similarly, Maugh II (1985) maintained that "cross-disciplinary interaction is expected to be basic to all new technology centers. "

The college environment in the U.S. is changing today. There is pronounced influx of immigrants. Foreign students in the U.S. reached a record of 386,000 in 1990 (Wilson, 1990). There is a sharp variance in the educational level, cultural and socio-economic background among these foreign-born students. A similar problem exists amongst newer

ethnic groups in large cities. Hom (1990), a biology instructor at Contra Costa College at San Pablo, CA, reported that the ethnic students in her classes had tripled in recent years. She also observed that many of these students have difficulties synthesizing and integrating information taught in separate courses. The texts for biology, anatomy, physiology and microbiology are more comprehensive each year. Both the instructor and student have difficulty getting through the book. Streamlining the contents in an integrative approach could be helpful.

It has been reported that undergraduates at large universities are increasingly dissatisfied (Wilson, 1991). Enrollment in the community colleges is up while it is down in the four-year colleges and universities because the former are more affordable and more important, provide better teaching (CNN, 1991). Quality teaching is a professional obligation of the instructor and we have been able to maintain this leadership in the community colleges. Integrated Science for nursing education has proven successful in our college. It should be further experimented in other applied fields such as allied health professions and biotechnology, as well as in the high school science curriculum.

ACKNOWLEDGEMENTS

Credits are due to the people who helped to develop Integrated Science, Professors James Brown and Edward Nash, and to the past and present instructors in integrated science. They are Professors Robert Kephart, Ruth Wenner, Ann Silicano, Marc Brodkin, and Mary Lou Turgeon. Their contributions have made the course successful. Special thanks go to Professors Joe Vikin and Ann Silicano for their help in the preparation of the manuscript. Thanks are also extended to students and nursing faculty for participating in the survey.

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Management Tools for Faculty Salary Decisions: Comparisons & Simulations

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Abstract

This paper describes the role played by graphic design and identification of key information in developing two effective higher education management tools at the University System of New Hampshire. The object of these two tools is faculty salaries, and their intended use is to aid decision-making in faculty compensation. However, similar tools can be constructed for much of what commonly faces institutional research or policy analysis within higher education. The purpose of this paper is to outline the shift in management capabilities effected by those tools through their design and implementation.

Introduction

Institutional Research in higher education is the business of information procurement ***and*** presentation. Historically, IR is a young field, and as such has spent much of its formative years in solidifying experimental design, methodologies, statistics and analyses. This continues to occupy much of the IR agenda, as evidenced in conference contents, publications and the actual working day of IR offices. However, much has been written lately on the critical role that strategic information plays in institutional planning, management and mission articulation. These are all institutional activities that IR supports; indeed they are its raison d'etre. The increased interest in Executive Information Systems and Decision Support Systems represents attempts to not only manage volumes of institutional data, but to distill the data to key information and to present the information in accessible formats. As a discipline, IR is moving into this area of information management, and specifically into the role of creating "enhanced information use" (Ewell, 1989) to assure success in institutional strategic planning. It is the dual roles of information distilling and graphic design that are critical in the accessibility and the actual use of available information.

This case history describes the evolution of faculty salary information at USNH from tabular lists to concise graphic salary information. It illustrates the impact the information and format has had on management decision-making by describing its use in related compensation considerations.

Background to Faculty Salary Studies

Faculty salaries at USNH had for many years been studied by rank-only and compared to a varying set of regional New England institutions. In 1983, political support was available in New Hampshire to improve faculty salaries at USNH

institutions. A detailed, discipline-specific comparison of salary levels against a set of selected comparable institutions was completed that same year. A commitment was then made by the Board of Trustees of the University System of New Hampshire for $1.2 million over three years to bring average faculty compensation to market means. At the conclusion of the three year program, analyses appeared to show faculty salaries continued to be below market and by an amount equal to or greater than the original estimate. This surprising and discouraging finding prompted a review of salary policies, analyses and an intention to establish consistent annual methodologies. Concurrent to this was an ongoing effort to shift Board activity away from operational management issues, and to focus on strategic planning. In 1988, the Board of Trustees approved the selection of official comparative institution sets against which to measure its own institutions on a wide variety of subjects besides compensation. Using this official comparator set, in 1989 the Office of Policy Analysis published the first of what has become an annual faculty salary study of all full-time, instructional faculty by rank and discipline within the University System of New Hampshire. The study compares USNH institution salary means by rank for 34 disciplines against salary means for the comparator sets. The stated goal of this initiative was to recognize and analyze the role of discipline, in addition to rank, in determining salary differences among faculty; and to examine through comparison, the "market" salary position of USNH faculty. Comparisons to "market means", as represented by the comparative institutions, yielded salary deficiencies. by discipline, by rank and by institution. The dollars needed to pay faculty at market rates were calculated. Additional summary statistics provided to management a wider set of parameters to consider in making salary decisions.

In that first year (1989), salary data was presented in long tabular format which was very difficult to read, and therefore prevented wide dispersion and use throughout top and middle-level management (Table 1). In the second year of the study, a commitment was made to significantly re-design the format for more effective presentation. A spiral-bound book format was employed with minimum text and maximum use of graphics. In the third year, there were a few design refinements to the book format, but a major evolution in automation of book production. With the completion of third annual study, and increased familiarization by the management community with the salary information, the book began to spawn additional management uses in related decision areas, such as salary negotiations with bargaining units. The development of these tools has enabled management to effectively shift discussions away from traditional polarized lines such as rank vs. discipline for salary awards, or across-the-board vs. target deficient areas, and into specific possible outcomes of specific management scenarios.

Tool One: The Book

The faculty salary book was designed to serve three institutional levels of faculty salary administration within USNH. The first level was the System-wide, top management level. The book was designed to be used first by the Board of Trustees; hence the need for system-wide coverage, unified methodology and format. It provides to the Chancellor, the Personnel Committee of the Board, and the Board itself a single

descriptive analytic document with which to address broad salary questions. Both policy and operational questions can be framed with this type of information. This includes questions such as the relative effectiveness of across the board vs. target disciplines in addressing salary deficiencies. The first three pages of the book contain a brief description of data sources, methods and System-level summary information. The key management information presented is shown in Table 2 . Additional information includes the percent by institution of additional funds required to meet market means overall.

The book was also designed to be of use to the Presidents of the institutions, their chief academic officers and their personnel officers. The institutional level summaries provide for them on three summary pages (Tables 3,4,5) the following key information:

- the distribution of additional salary funds required by discipline
- the position of each discipline relative to market
- the most deficient areas in faculty salaries
- the dollar amount required to address these deficiencies

These tables show the deficiencies by discipline which illustrate the "competition" that recruitment efforts might need to address. It summarizes for top institutional management the size of the compensation problem in total dollars needed. It highlights the consequences by discipline of across-the-board raises (in some cases raising mean salaries above market). It graphically illustrates the most deficient disciplines, and their proportion of required salary dollars to meet market means.

The third level of institutional information within the book is for institutional administrators such as deans or department chairs. Each discipline within each institution has on a single page, all pertinent information on salary means, deficiencies and discipline salary base by rank, thereby facilitating dissemination of the information by separating pages into either colleges, departments or other administrative units. It can be used by deans of colleges and department chairs in reviewing actual salaries of individual faculty: it provides a mean salary for a discipline, and a market mean against which to compare and assess individual faculty's salaries. Certainly, salary decisions are not based on market equity alone; however, knowledge of external market salaries does provide to an administrator an important perspective in awarding individual compensation. While the book is based on discipline groupings of USNH faculty rather than department, it provides a complementary set of information to departmental summaries of faculty salary deficiencies.

There are six basic pieces of information any administrator (department chairs, college deans, vice-presidents of academic affairs, presidents, personnel officers, chancellors, Trustees) might want to know about a particular rank and discipline:

1. average salary
2. average salary of comparative institutions
3. salary deficiencies
4. what does it cost now (existing salary base)
5. what would it cost to fix it? (dollars needed to catch-up)
6. percent needed for catch-up

The design of the discipline summary page emphasizes these six data points and through the use of a graphic in lower right hand corner, presents an encapsulated summary of the status of the discipline (see Tables 6 & 7 for sample pages). The book, while containing over eighty pages, presents a clear, easily accessible summary of useful information concerning the salary picture of ranked faculty for each discipline group studied.

In general the six data points per rank and discipline were determined in the following manner:

1. Average USNH Salary - faculty salaries at each of the three campuses of the University System of New Hampshire were averaged by rank within discipline groups based on aggregations of their CIP (NCES 1987) codes.

2. Average of Comparators Salary - average faculty salary by rank and discipline group using CIP codes for a set of comparative institutions were obtained from special requested studies of national surveys (OSU 1989,1990; CUPA 1989, 1990) and individual institutions not participating in the national surveys

3. Market deficiency - USNH averages were compared to comparator averages by rank and similar discipline group . Market deficiencies were calculated by:

$$\frac{\text{Average USNH Salary - Average of Comparators}}{\text{Average of Comparators}} \times 100$$

4. What Does It Cost (Discipline Salary Base) - for a given a discipline group, the number of ***USNH*** faculty in each rank was multiplied by the average USNH salary for that rank and summed over the three ranks to yield the discipline salary base.

5. What Would It Take To Fix (Salary Base Using Comparator Averages) - for a given discipline group, the number of USNH faculty in each rank was multiplied by the average ***comparator*** salary for that rank and summed over the three ranks to yield the salary base using comparator averages.

6. Catch-up Percent - the discipline salary base minus the salary base using comparator averages was divided by the discipline salary base to yield the percent change needed to "catch-up".

These six data points are calculated for each rank within each recognized discipline group for each of the three main campuses of the University System. They provide comprehensive pictures of the faculty salary landscape throughout the system.

In summary, the USNH Faculty Salary Book by Rank and Discipline strives to provide useful, accessible information to at least three levels of administrative hierarchy within a single document.With the introduction of this approach to analyzing and summarizing faculty salary deficiencies, management then began to apply this approach to additional compensation questions and strategies. A salary distribution model was developed based on the methodologies of the salary book for use in collective bargaining negotiations at one of the institutions of the University System.

Tool Two: Salary Model

The Faculty Salary Distribution Model provides simulation capabilities for the variable disbursement of salary increase dollars. The model is assigned by the user an amount of total dollars available for increases in an institution. The user then partitions the increase dollars into a pool for rank-only (rank) adjustments and a pool for rank-within-discipline (discipline) adjustments. The model subsequently predicts a per capita increase for each adjustment (rank and discipline) which is added to an individual faculty's salary. By varying the partitioning to reflect different compensation strategies, scenarios are developed to illustrate consequences at the individual, the discipline, the department or division, and the institutional level.

The initial scenarios reflected the two sides of the bargaining negotiations. The union's historical position called for salary increases based solely on rank differentials and years of experience. The University System position advocated examining salary deficiencies based on rank within disciplines - the same analysis and methodology used in the annual Faculty Salary Book. Management - and the System's chief negotiator recognized that resolution would most likely be a compromise position. Therefore, the salary model needed the capability of simulating the following four scenarios:

Scenario One -	100% of total increase dollars disbursed based on discipline deficiencies only
Scenario Two -	33% rank, 67% discipline
Scenario Three -	67% rank, 33% discipline
Scenario Four -	100% rank

With the current rescission climate in New England over the past few years, the ability to vary the total increase dollars available also became crucial to the utility of the model. Between the time the model was first developed presuming a 3.5% increase to the institutional salary base, and the time of first presentation at the bargaining table, a mid-year rescission was instituted in the state of NH. The possible increase to the salary base shrank to 2.5%, requiring re-runs of the model with concomitant new figures in per capita increases. In addition, a new scenario was developed as an additional strategy for negotiations. The fifth scenario partitioned the salary increase dollars into 50% rank and 50% discipline.

The model itself is a simple spreadsheet that has the following basic components:

- a population with name, rank, CIP code, department, & salary
- market deficiencies by rank and discipline (from the faculty salary book of the previous year)
- average of comparator deficiencies based on rank only (from AAUP salary survey)
- history of deficiencies over last three years

Rank adjustment dollars are calculated in five steps:

1. Average salaries by rank for the official comparative institutions were taken from the annual AAUP salary survey results (Academe, AAUP). An average of these salaries was calculated for each rank, with an adjustment for rank mixes at each institution These averages were compared to the USNH institution rank averages to yield average deficient dollars for each rank.

2. Each rank deficiency was multiplied by the number of faculty in each rank to produce total deficient dollars by rank, and summed to produce a grand total of deficient dollars.

3. The percentage each rank represented of the grand total of deficient dollars was calculated.

4. The amount of dollars available for rank adjustment was determined by applying the distribution factor to the pool size. The available adjustment dollars were divided into rank pools, using the percentage of deficiency that each rank represents.

5. For each rank, per capita adjustment dollars were calculated by dividing the total adjustment dollars available for each rank by the faculty headcount in each rank.

Discipline adjustment dollars are also calculated in five steps:

1. For each rank within each discipline, the difference between the salary base using comparator averages and the actual salary base is calculated where actual salary base is defined as:

institutional salary base	=	institutional mean salary	*	institutional headcount

and salary base using comparator average is defined as:

salary base w/comp aves	=	comparator mean salary	*	institutional headcount

2. The percent of additional funds required by each rank and discipline aggregate is determined by dividing, for each rank within each discipline, the average salary difference by the grand total of average salary dollar differences.

3. The number of faculty within each rank of each discipline of the faculty population used in this study was determined.

4. The total dollars available for discipline adjustment was determined by applying the discipline fraction to the total dollars available. Then per capita dollars were determined by:

$$\text{per capita dollars for discipline} = \frac{\text{total discipline dollars}}{\text{headcount}} * \text{\% additional funds required}$$

Those ranks and disciplines with either no faculty or mean salaries above the comparator mean receive no distribution dollars. Per capita dollars are then distributed to individual faculty by rank and discipline.

5. Inflators to produce subsequent year average comparator salaries were developed using the change in average comparator salaries by rank and discipline in past years. The predicted subsequent comparator averages were then compared to the individual faculty salaries following disbursement of salary increase dollars and future deficiencies were calculated. The model provides the following management information:

- total previous year salary dollars for a given population (e.g. faculty within bargaining unit)
- total current year salary dollars following increase
- percent increase of total salary base
- total estimated continued market deficit following increase
- average discipline continued market deficit
- current year salaries for individuals following increase
- estimated individual faculty continued market deficit

Tables 8 and 9 illustrate sample results from the model. Table 8 graphically represents the salary increases to an individual faculty member under four scenarios. Table 9 summarizes the four scenarios by institutional division. In scenario one, which is 100% discipline-based salary adjustments, faculty who are most underpaid relative to the "market" are the chief beneficiaries. In scenario four, which is 100% rank-based, faculty in the highest ranks, and disciplines which are relatively "top heavy" benefit most. This type of result provides a clear picture of both managerial and philosophical strategies in faculty compensation issues.

In addition to the numerical results which detail the implications of each salary disbursement scenario, a critical result presented to management was the effect that the

existence of the model alone created. Negotiations historically focused on the union's formula and documents for deciding salary increases. The union's Salary Index Schedule assigned standardized salaries by rank to each year of experience (0 to 40), and the equity adjustments were based on standard increments for each year of experience. This document was the focus of salary discussions at the bargaining table. With the development of the Salary Distribution Model, the discussion shifted dramatically from arguments about the merits of rank only equity adjustments and its methodological drawbacks, to comparisons of the actual financial implications of each of the five scenarios. The institutional implications as well as the discipline, departmental and individual implications can all be clearly documented and contrasted. The ability to easily re-run the model with changing parameters gives this tool valuable flexibility, especially in the volatile world of collective bargaining.

Conclusions

The use of the faculty salary book and salary distribution model represent a modest case history of the impact of design on effective information use. One lesson learned is that presentation is critical is making information accessible. We have seen how management options increase with effective information and how flexible, responsive tools impact the decision-making process. As Institutional Research continues to increase its presence and responsibility level in the arenas of strategic and institutional planning, it is incumbent upon us to utilize available technology, educate ourselves in basic concepts of good graphic design, and continue to distill the immense amount of data with which we are daily confronted. With this mixture of ideas, technologies and methodologies, we will be more able to use information effectively.

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Table 1. Sample page from the first USNH faculty salary study.

The results of the study were presented in eighteen tables similar to this. This format was difficult to read or use, and consequently was not widely circulated

FULL PROFESSOR SALARIES
(Academic Year Faculty)

CIP	DISCIPLINE	UNH SALARY COST	COST IF FAC. PAID SURVEY AVE	% UNH INC. NEEDED	$/PERSON
1	Agriculture	$50,000	$46,955	-6.09	($3,045)
2	Animl.,Plnt.& Soil Sciences	$41,890	$45,616	8.90	$3,726
3	Natural Res.	$43,130	$51,429	19.24	$8,299
5	American Stds.	$43,000	$49,342	14.75	$6,342
6	Business.xAcct	$512,613	$538,392	5.03	$2,864
60201	Accounting	$119,230	$121,894	2.23	$1,332
9	Communications	$81,190	$93,457	15.11	$6,134
11	Information Sci.	$40,240	$58,833	46.21	$18,593
13	Educa.w/oP.E.	$356,960	$392,924	10.08	$4,496
131314	Phys. Ed.	$48,750	$48,797	0.10	$47

Table 2. Sample page from the AY89 USNH Faculty Salary Book of summary information at the System-wide level.

Summary of USNH Institutions Market Position and Catch-up Requirements in AY90

	AY 90 Salary Base	AY90 Salary Base Using Comparator Average	Catch-up Funds Required in AY90	Percent Deficient
UNH	$22,886,135	$24,558,204	$1,672,069	6.81
KSC	$5,147,026	$5,586,761	$439,735	7.87
PSC	$4,942,192	$5,275,360	$333,168	6.32
All Schools	$32,975,353	$35,420,325	$2,444,972	6.90

Table 3. Sample page from the AY89 USNH Faculty Salary Book of institutional summary of most deficient disciplines.

Percent of Additional Funds Required by UNH Disciplines in AY90 to Meet Market Means

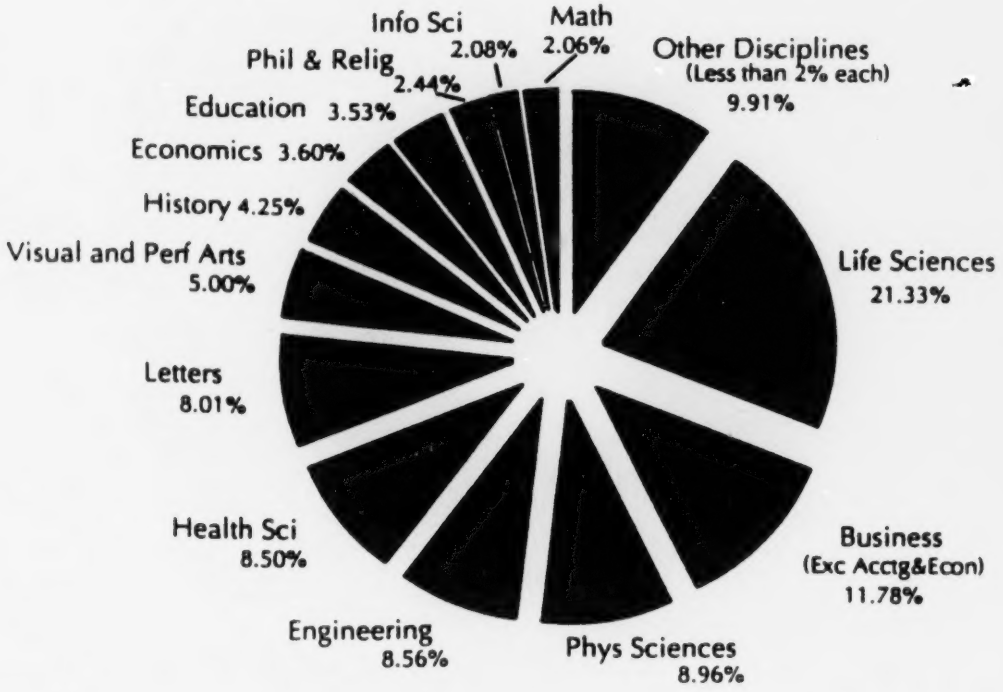


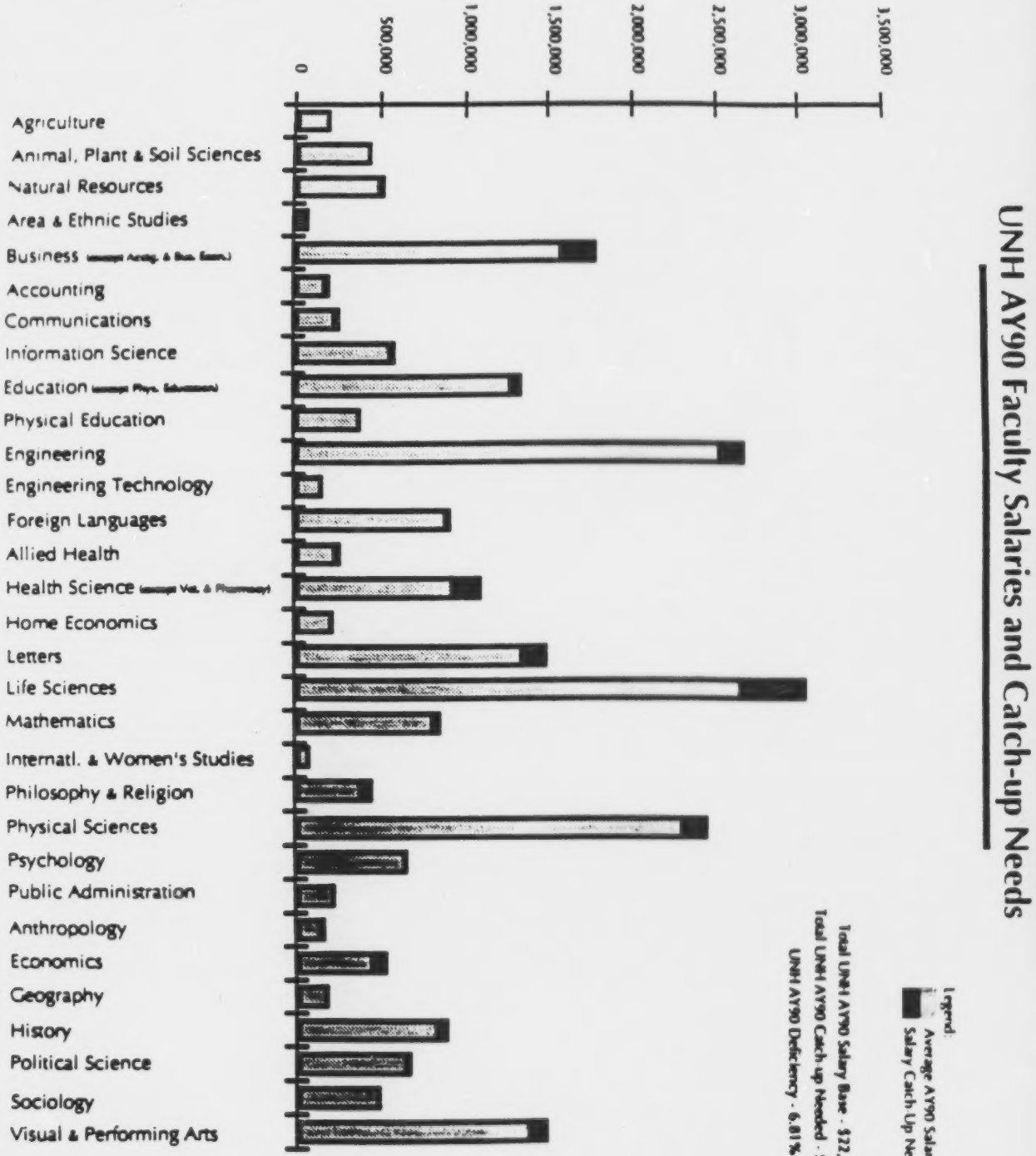
Table 4. Sample page from the AY89 USNH Faculty Salary Book of institutional market positions by disciplines.

Market Position of UNH Disciplines in AY90

Mean Salary More Than 10 Percent Below Market	Mean Salary 5+ to10 Pecent Below Market	Mean Salary 1-5 Percent Below Market	Mean Salary 1 Percent Above/Below Market	Mean Salary 1+ to 5 Percent Above Market	Mean Salary More Than 5 Percent Above Market
Area/Ethnic Studies*	Accounting*	Natural Resources	Agriculture	Engineering Technology	Physical Education
Business (except Accounting/Econ	Info. Science	Communications	Animal, Plant & Soil Sciences	Geography*	
Allied Health	Engineering	Education (w/o Phys. Ed)	Home Economics		
Health Science	Letters	Foreign Languages	Int'l. & Women's Studies*		
Life Sciences	Phil. & Relig.	Mathematics	Sociology		
Anthropology*	History	Psychology			
Economics	Visual & Perf. Arts	Public Admin.			
	Physical Sciences	Polit. Science			

*Disciplines with fewer than 5 individual faculty.

Table 5. Sample page from the AY89 USNH Faculty Salary Book of summary of institutional salary bases by discipline, and the size of catch-up dollars required to market means.



PSC Discipline: Education except Physical Education

CIP Code: 130000

AY91 Salary Averages

	PSC Average	PSC Number of Faculty	Average of Comparators	Comparator Number of Faculty	Percent Above/Below Comparator Average
All Academic Year Faculty					
Full Professor	46,491	8	49,262	164	-5.63
Associate Professor	34,976	5	39,141	105	-10.64
Assistant Professor	32,921	8	34,153	77	-3.61
All Fiscal Year Faculty*					
Full Professor	0	0	49,262	164	0.00
Associate Professor	0	0	39,141	105	0.00
Assistant Professor	0	0	34,153	77	0.00

*AY91 estimate of fiscal faculty salary based on 85% of actual FY91 salary

Salary Catch-up Needs

	AY91 Discipline Salary Base*	AY91 Salary Base Using Comparator Averages**	Percent Change Needed for Salary Base Catch-up
All Academic Year Faculty	810,176	863,025	6.52
Full Professor	371,928	394,096	5.96
Associate Professor	174,880	195,705	11.91
Assistant Professor	263,368	273,224	3.74
All Fiscal Year Faculty	0	0	0.00
AY91 Totals	810,176	863,025	6.52

* Salary base estimate calculated using FTE, headcount and FTE salary averages

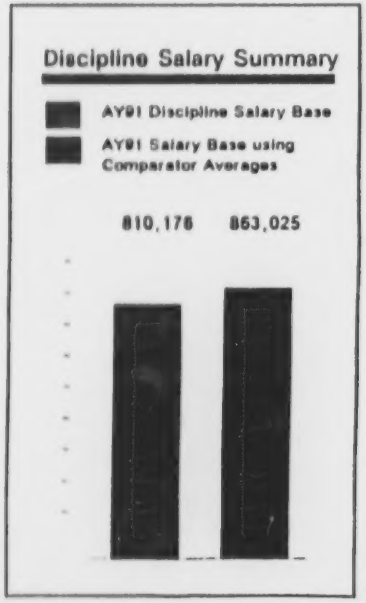


Table 6. Sample page from the AY90 USNH Faculty Salary Book of single discipline summaries within an institution.

PSC Discipline: Information Sciences

CIP Code: 110000

AY91 Salary Averages

	PSC Average	PSC Number of Faculty	Average of Comparators	Comparator Number of Faculty	Percent Above/Below Comparator Average
All Academic Year Faculty					
Full Professor	52,460	1	53,788	22	-2.47
Associate Professor	44,000	1	48,146	23	-8.61
Assistant Professor	33,805	2	37,964	34	-10.96
All Fiscal Year Faculty*					
Full Professor	0	0	53,788	22	0.00
Associate Professor	0	0	48,146	23	0.00
Assistant Professor	0	0	37,964	34	0.00

*AY91 estimate of fiscal faculty salary based on .857 of actual FY91 salary

Salary Catch-up Needs

	AY91 Discipline Salary Base*	AY91 Salary Base Using Comparator Averages**	Percent Change Needed for Salary Base Catch-up
All Academic Year Faculty	164,070	177,862	8.41
Full Professor	52,460	53,788	2.53
Associate Professor	44,000	48,146	9.42
Assistant Professor	67,610	75,928	12.30
All Fiscal Year Faculty	0	0	0.00
AY91 Totals	164,070	177,862	8.41

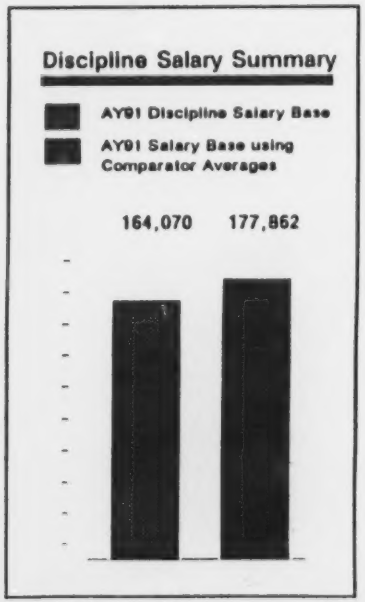


Table 7. Sample page from the AY90 USNH Faculty Salary Book of single discipline summaries within an institution.

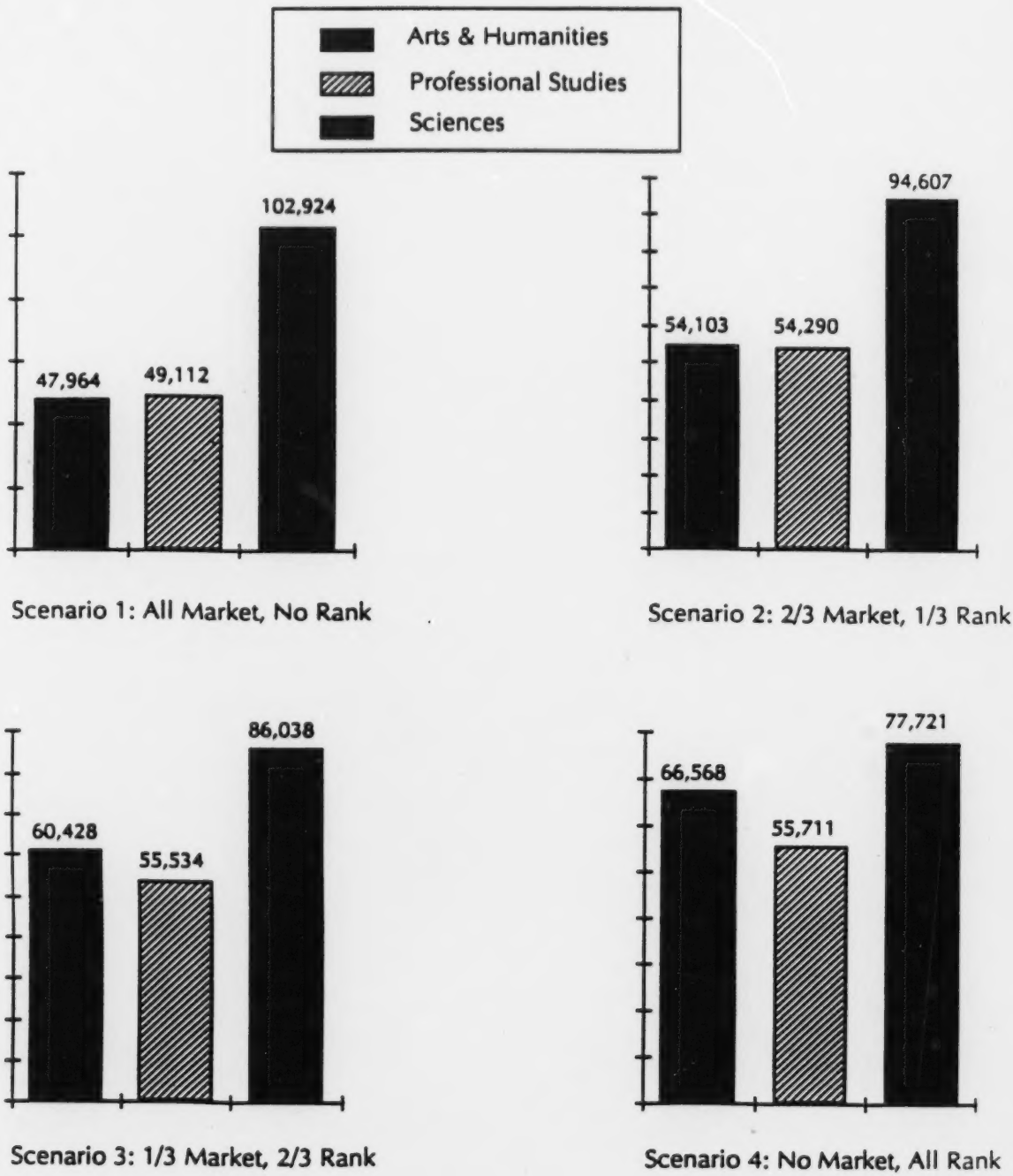
per capita Results

- English
- Letters (2301010)
- Assoc Prof

Table 8. Sample results from the USNH Faculty Salary Distribution Model of per capita salary increases under four differing management scenarios.

Table 9. Sample results from the USNH Faculty Salary Distribution Model of divisional differences in salary increases under four differing management scenarios.

Summary of Distributed FY92 Salary Dollars by KSC Division for Four Model Scenarios



Public Accountability and Developmental (Remedial) Education

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Introduction

Divergent trends in education and the political environment influence discussions about developmental (remedial) education programs. On one side, colleges must respond to accreditation agencies which require provision of programs commensurate with responsible admissions policies. Most community colleges offer developmental programs as they endorse a policy of open-door admission in an effort to make post-secondary education accessible to all segments of the community. Additionally, many four-year colleges provide developmental programs "in response to changing enrollment patterns of entering freshmen, declining high school achievement levels, and adoption of open admissions standards" (NCES 91-191;1). Yet, the public and politicians often question the need for these programs, suggesting they duplicate the appropriate function of high schools.

Moreover, when faced with budget deficits, States and local governments question the fiscal resources devoted to programs that are not popular or prestigious such as developmental education. The purpose of this paper is to provide a rationale and analyses that could be used to position an institution (in this case, a community college) to respond to an attack on resources associated with developmental or remedial education. The paper will use data from Anne Arundel Community College, but the emphasis throughout will be on providing information that can be applied to programs considered to be essential to a postsecondary institution's mission and, simultaneously, unpopular with the public.

Background

Developmental education refers to programs and courses designed to prepare students to perform college level work; other terms that institutions may use include remedial, compensatory, or basic skills (McClinton and McKusick, 1989). A recent National Center for Education Statistics Survey Report (NCES 91-191;iii) reveals that three out of four colleges and universities offered at least one remedial course in fall 1989. Nevertheless, according to this same report many institutions could not provide student outcomes measures for students who enrolled in at least one remedial course. Significantly, this lack of information on student outcomes coincides with increasing federal and State reporting requirements on student outcomes, including graduation or completion rates.

An extensive current literature discusses evaluation of developmental programs. Bers, 1987, provided an excellent review of evaluation issues in relation to

developmental education. She explained the special nature of developmental programs, outlining the differences in definitions, components, purposes and structures that often typify these programs, and provided a model remedial program evaluation design. Budig, 1986 and Bers, 1988 contributed two relatively recent program evaluations. Additionally, the 1989 NCES Survey results suggested that almost all institutions conduct some form of evaluation of their developmental program--most commonly student evaluations, instructor evaluations or student course or program completion rates (1991;10).

The literature on developmental programs also acknowledges the political sensitivity of these programs. McClinton and McKusick referred to the reluctance of legislators to reimburse colleges for teaching basic skills "which ought to have been mastered in elementary and secondary schools" (1989,1). Bers stated, "Legislators and other public officials wonder why money must be spent at the college level to assist students in obtaining proficiencies they should have had at the time of high school graduation" (1987,7).

Finally, these developmental education program evaluations and the 1989 NCES Survey suggest that institutions often lack routinely collected analyses that could be used to provide for comparability and public accountability. One problem is that colleges have not consistently defined, analyzed or reported performance outcome measures. For example, the NCES Survey reported that it could not compare retention rates to the second year for students enrolled in developmental courses with those for all freshmen because too few institutions maintained these records to furnish a national estimate (1991,12).

Current practice in the presentation of institutional evaluations constitutes another problem. Everyone would agree that the purpose of an evaluation will affect its methodology and presentation. An explicit concern about public accountability dictates an evaluation strategy that provides analyses that are simple, direct and, if at all possible, equipped with "emotional hooks" politicians and the public are less likely to criticize. Of course, this does mean a researcher will unscrupulously manipulate the data or preclude more sophisticated analyses as a backup or base for the simpler tables presented for public accountability. It also does not prevent analyses primarily focused on the goals of improvement and program evaluation.

Analysis

Linkage to Mission. Key to the defense of a program is its tie to the institution's mission. Anne Arundel Community College's developmental education program has a direct tie to the college's mission. Like all community colleges in Maryland, Anne Arundel is an open-door institution and must provide programs and curricula to carry out this mission. By law, admission is granted to all high school graduates, students with a high school equivalency certificate, and persons who are not high school graduates and who present evidence through testing or other means of the ability to profit from the instruction the institution offers.

Accreditation standards require the college to offer programs and curricula "commensurate with the obligations inherent in a responsible admissions policy" (Middle States Association of Colleges and Schools, 1990). Maryland regulations even more directly state "an institution which maintains an open-door policy shall make adequate provision for placement testing, counseling and compensatory services" (COMAR 13B.02.03.09). Certainly the college could not be considered "responsible" if it did not offer a program for students in need of review or basic preparation for college instruction. Any public presentation should include direct references to a program's mission centrality, as well as any legal requirement the program fulfills.

Description of Population. Instead of focusing on a description of the program (policies governing placement, types of courses or instruction offered, qualifications and funding of faculty, and sources of funding), an accountability analysis will provide information on the program population. For example, Table 1 displays simple percentage information describing the population at Anne Arundel who are enrolled in Math and English developmental courses compared with the total student body.

Table 1. Students Enrolled In English and Math Developmental Courses Compared To All Students, Fall 1991.

	Students Enrolled In Math Developmental Program	Students Enrolled In English Developmental Program	Total Students
	1197	724	12,401
	10%	6%	100%
Male	52%	48%	41%
Full-time	52%	54%	28%
Minority	14%	22%	12%
Transfer Goal	67%	57%	45%
New	35%	60%	28%
New High School Graduate	35%	48%	11%

Source: OPR 1991

The data suggest that at Anne Arundel, the following subgroups are over-represented in the developmental population.

- Male Students
- Minority Students
- Students Who Intend to Transfer
- Full-time Students
- New to the College
- Recent High School Graduates

These student characteristics provide ammunition to convince a skeptical public that the developmental program is assisting populations the programs were intended to help. Using the data our arguments might be:

1. Because student achievement is a significant concern in the state of Maryland and in Anne Arundel County, the college in the past year had made a written commitment to improve the retention rates of minority students. This program serves that group of students.

2. The profile shows that the developmental student population includes a high percentage of students who have a goal of transferring to a four-year college, who are attending college full-time, and who are new to college. These characteristics may indicate a student's deepening maturity; it is reasonable to suggest that many of our developmental students are getting serious about their future for the first time. The students who enroll in developmental courses must pay tuition but earn no credits toward graduation--this is at least one indication of an intention to succeed.

Information is more powerful if it clearly differentiates who is adversely affected if programs are eliminated. In this case, it would be very difficult for politicians to recommend eliminating a program that inordinately affects minority and male students who seem to be taking steps to achieve a serious goal.

Outcomes Assessment. It is obvious that public accountability demands an evaluation of the effectiveness of the program. Anne Arundel Community College uses several measures to evaluate the developmental program, including course completion and success rates, retention rates, and outcomes related to the purpose of developmental courses (to prepare students to succeed in performing college level work).

Course Completion Success Rates. One measure of the effectiveness of a developmental program is whether the students enrolling in the courses actually complete them successfully. At Anne Arundel, a course completion success rate refers to the percent of official, third week registrants who earned passing grades of C or higher. Table 2 provides Fall 1990 course completion success rates by developmental subject area and course compared with overall division course success percentages.

Table 2. Developmental Course Success Rates Compared To Divisional Course Success Rates, Fall 1990.

Developmental Courses	Developmental Course Success Percentage	Divisional Course Success Percentage
English 001	69%	
English 002	73%	
English 003	91%	
English 005	88%	
Totals	73%	71%
Math 010	62%	
Math 011	55%	
Math 012	45%	
Totals	53%	58%

* Success is defined as earning a grade of A, B, C, or Pass.

Source: OPR 1991

This information shows that with the exception of one course, well over 50 percent of the students complete the developmental courses successfully. In English, an average of 73 percent of the developmental students received a grade of A, B, C, or Pass, slightly higher than the overall English division course success rate percentage. In math, 53 percent of the developmental students succeed, quite comparable to the 58 percent success rate in all math courses.

The data show that a majority of students who are unprepared for college actually succeed when they enroll in developmental courses.

Retention Rates. A second measure of effectiveness the college is based on whether developmental students are retained in college. Anne Arundel reviews "fall to spring retention rates," which refer to the number of students enrolled in the fall who return for classes in the spring, measured at the third week of classes, and "fall to fall retention rates, " which refer to the number of students enrolled in the fall who return for classes the next fall, measured at the third week of classes.

A review of retention rates show that developmental first-time freshmen have higher retention rates than the college average. Table 3 illustrates that the fall to spring average semester retention rate is fifteen percent higher than the overall college first-time retention rate, and the fall to fall average retention rate is twelve percent higher.

Table 3. Developmental First-time Freshmen Student Average Retention Rates Compared To College First-time Freshmen Rates, Fall 1990.

Cohort	Average Fall to Spring Retention Rate	Average Fall to Fall Retention Rate
Developmental Students	69%	52%
Total College	53%	40%

Note: Averages reflect five years of data.

Source: OPR 1991

This information could be used as contributory evidence that developmental students are serious and are succeeding in college.

Preparation for Credit Courses. Direct evidence of the effectiveness of the developmental program is provided by examining the student outcomes of students who have completed their developmental requirements and enrolled in the regular credit course sequence. Figure 1 displays the results of a study where the college found that success in the English developmental courses was a strong indicator of success in the first college credit English course, and overall the success rate of students who had completed their developmental requirements was only slightly lower than students with no developmental requirements.

Figure 1. Credit English Course Success Rates by Group, New Students Enrolled in Fall 1986, Spring 1987, Fall 1987, Spring 1988, or Summer 1988 Tracked Through Fall 1988.

	Completed Developmental English Requirements	No Developmental English Requirements
Students With a Grade of A,B,C	252	1547
Total Students	380	2107
Success Rate	66%	73%

Source: Tripp, 1991

It is important to note that no significant differences were found in success rates between students who had completed developmental requirements and those students who had no developmental requirements and could immediately enroll in the first credit English course. Or, more simply, the developmental program had successfully prepared a majority of students to succeed in college level English.

Credit Course Outcomes For Selected Student Cohorts. A final set of outcomes information provides indirect evidence of the effectiveness of the developmental program. Table 4 presents an analysis of course success and attrition rates in the college's four highest enrollment courses by differentiating three student cohorts:

- No Developmental Requirements Cohort--students that had submitted all required documents for enrollment, such as high school transcript or GED, SAT or ACT scores, and as a result had been assessed as having no developmental requirements,

- Completed Developmental Requirements Cohort--students that were deemed in need of remediation at the time of their original enrollment, who then completed all developmental courses by they time they enrolled in the high enrollment classes,

- Developmental Requirements Cohort--students whose academic records or placement scores indicated they must complete certain developmental courses, but who had not completed these courses at the time they enrolled in the high enrollment courses.

Table 4. Average Course Success Rates by Four Student Cohorts (All Students, Students With No Developmental Requirements, Students Who Have Completed Their Developmental Requirements, and Students With Uncompleted Developmental Requirements), Fall 1989-Spring 1991.

	All Students	No Dev. Requirements	Completed Dev. Req.	Uncompleted Dev. Req.
Course 1 Success Rate*	66%	74%	67%	48%
Course 2 Success Rate	71%	76%	70%	58%
Course 3 Success Rate	76%	80%	76%	61%
Course 4 Success Rate	77%	81%	81%	62%

* Each course success rate is an average rate using four semesters of data (fall 1989, spring 1990, fall 1990, spring 1991).

Source: Richards, 1991

Table 4 shows that the student outcomes found in the four courses are broadly similar. Students with no developmental requirements tend to have the highest success rates. Students who have completed their developmental requirements have slightly lower, but still high success rates. Alternatively, students who have not completed their developmental requirements have significantly lower success rates. This information suggests that students have a better chance of succeeding if they complete the developmental requirements before attempting subsequent college level work.

Program Cost. If the data is available it is a good strategy to provide cost information on a program under scrutiny. Anne Arundel was fortunate to be part of a statewide system of Discipline Cost Analysis that provides cost per FTE (full-time equivalent) student data. Table 5 displays the cost per FTE for our English and Math developmental programs.

Table 5. Discipline Cost Report, Anne Arundel Community College, Fiscal Years 1987, 1988, 1989

	FY 1987	FY 1988	FY 1989
Developmental English	$2,215 161 FTE	$1,914 176 FTE	$1,065 205 FTE
Developmental Math	$3,149 134 FTE	$3,402 137 FTE	$1,797 174 FTE
All General Education	$3,159 3144 FTE	$3,248 3350 FTE	$3,193 3852 FTE

Source: OPR 1991

At Anne Arundel, the developmental education programs have a lower cost per FTE (full-time equivalent) student than the average general education course cost.

Summary and Implications

Public accountability dictates an evaluation strategy that provides simple and direct information. This paper recommends presenting the following data:

- Tie to Mission (or legal requirements)
- Concrete Description of the Population Affected

- Effectiveness or Outcomes Information
  - Course Completion Success Rates
  - Retention Rates
  - Success In College Level Courses
- Cost Per FTE

In the case study presented, it seems clear that Anne Arundel Community College's developmental program is essential to its mission as presently defined; that a majority of the students who are affected by the requirement have clearly defined educational goals; that by several measures of effectiveness the program is accomplishing what it was intended to accomplish--students are succeeding in the courses and are retained in college and, most importantly, they are succeeding in subsequent college level work; and finally that the program is not extravagant.

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Increasing Institutional Research Effectiveness and Productivity: Findings from a National Survey

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Introduction

Institutional researchers have long struggled with the definition of their profession, or indeed, whether what they do may be considered a profession. From debates on the training and credentials necessary to work in institutional research, including many lengthy discourses via BITNET on how people come into the field, to well-attended conferences and workshops, institutional researchers are constantly striving to assess and improve the state of the profession. The 30th anniversary of the Association for Institutional Research in 1990 brought forth several useful guides to institutional research (Clagett and Huntington, MacDougall and Friedlander, Presley, Saupe) that collectively provide a foundation for understanding the concerns of and approaches to institutional research.

In spite of this growing literature about models for conducting institutional research, using technology to improve office efficiency, and related topics, it is still nearly impossible to engage in conversations with colleagues without hearing about how unique and difficult the field is, and how institutional researchers are overworked and unappreciated. Oddly enough, given our profession, our anecdotal evidence has been backed up by very little systematic collection of data on these issues. How widespread are these feelings of understaffing and alienation? What special obstacles do we face in this profession? How do our colleagues overcome these obstacles? While conceptual frameworks have been proposed for analyzing barriers to information use (for example, McLaughlin and McLaughlin, 1989), and common institutional research problems and solutions have been identified in humorous skits (accompanied by a serious handout--Meredith, 1989), no recent data on the breadth of these concerns about office effectiveness exist. A study of such questions should inform our understanding of institutional research as a profession as it enters the 1990s.

Methodology

To investigate practitioner perceptions of institutional research effectiveness and productivity, a national survey of institutional research directors was conducted. A systematic random sample of directors was drawn from the 1990-91 AIR membership directory. A total of 150 AIR members with a title of director of institutional research or the equivalent was mailed a one-page questionnaire during April 1991.

The questionnaire requested information about institution size and type, and level, composition, and adequacy of institutional research staffing. Three open-ended questions about office effectiveness, productivity, and innovations constituted the heart of the survey. A cover letter briefly described the project, requested the recipients' input, and assured confidentiality. Respondents were not identified in any way on the questionnaire.

Results and Discussion

By the time analysis commenced, 123 responses had been received, 39 from two-year institutions, 60 from four-year public, and 24 from four-year private institutions. Even considering the population, this 82 percent response rate was exceptional, and was considered sufficient for drawing some tentative conclusions about the state of institutional research in 1991.

Staffing Levels

The sizes of the institutional research staffs ranged from 0.5 to 22.25 FTE. Table 1 presents research office staff size by type of institution. Four-year public institutions had the largest average staff size at nearly five FTE, while four-year private institutions had the smallest average staff size at 2.4 FTE. Community colleges fell in between, with an average of three FTE staff.

Total FTE Staffing in Institutional Research by Campus Type

Total IR FTE Staff	Two-Year Colleges (N = 39)	Four-Year Public (N = 60)	Four-Year Private (N = 24)
6 or more	5%	27%	4%
5 - 5.9	13%	17%	13%
4 - 4.9	8%	13%	4%
3 - 3.9	33%	17%	13%
2 - 2.9	18%	15%	8%
1 - 1.9	20%	12%	50%
0 - 0.9	3%	0%	8%
Mean FTE Staff	**3.1**	**4.8**	**2.4**

Table 1

Examining the staffing levels in terms of the campus size, defined by fall credit headcount, resulted in the intuitively appealing finding that larger institutions have larger institutional research staffs. These results are summarized in Table 2. The majority of the small institutions (less than 5,000 students) had less than 2 FTE staff, while the majority of the large institutions (over 15,000 students) had 5 or more FTE.

Total FTE Staffing in Institutional Research by Campus Size

Total IR FTE Staff	Fall Credit Headcount: Less than 5,000 (N = 24)	5,000 to 15,000 (N = 49)	More than 15,000 (N = 48)
6 or more	0%	4%	35%
5 - 5.9	4%	16%	19%
4 - 4.9	0%	10%	15%
3 - 3.9	13%	37%	8%
2 - 2.9	17%	16%	13%
1 - 1.9	54%	16%	10%
0 - 0.9	13%	0%	0%
Mean FTE Staff	**1.7**	**3.3**	**5.4**

Table 2

Respondents were asked to rate the adequacy of the staffing "relative to the job to be done". The rating ranged from 1 to 5, with 1 anchored as "inadequate" and 5 as "fully adequate." It was tempting to suppose that larger staff sizes would result in stronger evaluations of staff adequacy, and the results lent some support to that notion (Table 3). The highest average ratings of adequacy (3.4) were given by those directors with larger staffs (at least 5 FTE). However, only six of the 123 respondents (less than five percent) felt that their staffing was "fully adequate". The overall average rating of staff adequacy was only 2.9 for the sample.

Total FTE Staffing and Mean Rating of Staffing Adequacy
(Five-point Scale)

Total IR FTE Staff	Number	Percent	Mean Adequacy Rating
6 or more	19	15%	3.4
5 - 5.9	18	15%	3.4
4 - 4.9	12	10%	2.8
3 - 3.9	26	21%	3.2
2 - 2.9	18	15%	2.4
1 - 1.9	27	22%	2.2
0 - 0.9	3	2%	3.0
Total	**123**	**100%**	**2.9**

Table 3

The ratings of adequacy did not vary greatly with either campus type (Table 4) or campus size (Table 5). The lowest mean ratings were given by directors at four-year public institutions and by directors at small campuses.

Rating of Adequacy of IR Staffing by Campus Type

Rating	Two-Year Colleges (N = 39)	Four-Year Public (N = 60)	Four-Year Private (N = 24)
(Fully Adequate)			
5	5%	3%	8%
4	33%	28%	42%
3	18%	18%	17%
2	33%	37%	29%
1	10%	13%	4%
(Inadequate)			
Mean Rating	**2.9**	**2.7**	**3.2**

Table 4

Rating of Adequacy of IR Staffing by Campus Size

Rating	Fall Credit Headcount: Less than 5,000 (N = 24)	5,000 to 15,000 (N = 49)	More than 15,000 (N = 48)
(Fully Adequate)			
5	8%	6%	2%
4	17%	39%	33%
3	17%	12%	23%
2	46%	33%	31%
1	13%	10%	10%
(Inadequate)			
Mean Rating	**2.6**	**3.0**	**2.9**

Table 5

These ratings of staff adequacy suggested some general dissatisfaction on the part of institutional research directors with their ability to do their job, given current staffing levels. (It would of course be valuable to learn how other professionals view the adequacy of their office's staffing.) The remaining survey items shed some light on the contributions of staff size and staff competency to the ratings of adequacy.

Obstacles to Effectiveness

Content analyses were performed on each of the open-ended items, with responses grouped into about 10 categories for each item. The categories defined by two independent raters were very consistent with each other, suggesting fairly unambiguous themes.

The first open-ended item asked "What is the biggest obstacle to increasing the effectiveness of institutional research at your institution - its ability to influence policy or inform decisions?" The most frequent response given was that staff was insufficient (Table 6). This included comments on both the size and the expertise of the research staffs, although the size of the staff was by far the larger concern. This is consistent with several other problems cited, specifically, external reporting demands and lack of time. As one respondent stated it, "... staff just don't crawl out of the data pile often enough."

Obstacles to IR Effectiveness in Influencing Policy Decisions

1.	Insufficient staff	15%
2.	President not a data person	11%
3.	Lack of accessible, integrated database	10%
4.	Organizational structure, lack of access to decision makers	9%
5.	External reporting demands	7%
6.	Lack of time	7%
7.	IR not seen as part of leadership team	6%
8.	Lack of executive planning, issue identification	6%
9.	Campus politics	5%
10.	Insufficient lead time	4%

Table 6

The lack of appreciation of data and research by presidents and institutional leadership was also heavily lamented. One respondent put it succinctly: "The biggest problem is not having people at the top who really want the data and information institutional research can provide." Related to this were problems of organizational structure. Many of the respondents felt that they had little access to the decision makers, and were "left out of the loop." It is difficult to influence policy decisions if you aren't included in discussions of them and you don't see the issues coming until they're upon you.

Productivity Enhancement

When asked for suggestions for how their office could become more productive, a fifth of the respondents said to add more staff (Table 7). This was the most frequent suggestion. Related to this, 10 percent suggested skill training for office staff. The second

and third most frequent responses dealt with computer technology, and included improving the quality of and access to mainframe database systems (cited by 16 percent) and further exploiting personal computer technology (11 percent).

Proposed Means for Increasing IR Office Productivity

1.	Add more staff	21%
2.	Better mainframe database/access	16%
3.	Better use of PC technology	11%
4.	Skill training for IR staff	10%
5.	Early identification of key issues by management	7%
6.	Automation/standardization of routine reports	6%
7.	Better IR office management procedures	6%
8.	Reduce state/federal reporting burden	6%
9.	Increase IR budget	4%
10.	Stop answering external surveys	3%

Table 7

It was somewhat surprising to find that only four percent of the respondents specifically mentioned increasing office budgets as a way to improve productivity, although more popular responses such as adding staff, better computer resources, and professional development and skill training all would entail more resources. Also, considering the complaints commonly heard among colleagues, a percentage higher than three percent might have been expected urging less responsiveness to external surveys (still an amusing finding, given the methodology of this study).

What Works in Institutional Research

The survey asked for specific kinds of "innovations, procedures, techniques or tools" that have helped institutional research professionals improve their effectiveness and productivity. The top five response categories dealt with various aspects of computer technology (Table 8).

What Works: Innovations, Procedures, Techniques, and Tools

1.	PC software	23%
2.	On-line access to mainframe files	18%
3.	State-of-the-art microcomputer systems	16%
4.	Customized databases/automated report generation	15%
5.	PC networks	11%
6.	Factbooks	10%
7.	Crosstraining all IR staff	7%
8.	Statewide IR groups/projects	6%
9.	Longitudinal cohort tracking files	5%
10.	Regular communication with top management	5%

Table 8

Almost a quarter of the respondents cited the usefulness of microcomputer software, either in general or specific packages. Microcomputer systems, as opposed to software specifically, were praised by 16 percent. Eleven percent identified PC networks as beneficial. Clearly, and not surprisingly, employing computer technology--particularly microcomputers--was viewed as the most valuable means for increasing the effectiveness of our profession.

Also consistent with responses to the previous questions, the cross-training of staff in all equipment and software used in the office plus regular communication with the president and top management were identified as of great value.

Other solutions cited included the use of factbooks, involvement in statewide institutional research groups and projects, and the use of longitudinal cohort tracking files. This latter suggestion probably reflects the increasing emphasis on student outcomes assessment.

Summary and Conclusions

This study attempted to elucidate some of the universal problems experienced by institutional research professionals and to identify some of the solutions practitioners have found to be effective in dealing with them.

The great majority of respondents identified serious obstacles to performing their jobs effectively. These problems were often things which were outside of the direct control of the professionals affected. Recurring themes included staffing and workload problems; access to and quality of information systems; access to decision makers and the perceived role of institutional research; and inadequate training of staff.

A few respondents reported good news. For example, in response to the item about obstacles to effectiveness, one person stated, "Are you assuming that IR offices are less than effective? This office is part of the President's staff and has direct impact on policy." However the overwhelming majority of comments, and the many requests for results of the survey, suggest a great concern for the profession by its members.

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Re-Examining the Role of an Institutional Research Office in a Changing Technological, Fiscal and Political Climate

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In September, 1990 the President at the State University of New York, College at Plattsburgh established a task force which was charged to make recommendations concerning the future agenda of the Office of Institutional Research (OIR). This re-examination of the role of the OIR was prompted by dramatic reductions in OIR staff resulting from changes in the fiscal, technological, and political climate. The factors which led to the formation of the task force; the investigative procedures developed; the resulting recommendations; and the advantages of such periodic self- evaluations for IR offices in general will be discussed.

I. Factors which led to the formation of a Task Force

A. Staffing levels in the office were drastically reduced when positions left vacant by retirement or promotion were unfilled. The major reason for not filling these vacant positions was budgetary. The State of New York is experiencing a severe fiscal crisis, which has resulted in the cutting of large numbers of positions in SUNY.

B. The other environmental factors, besides the budget crisis, which contributed to the downsizing of the OIR and to the subsequent establishment of the IR Task Force were:

1. The severe decline in high school graduates is tapering off. Consequently, enrollment management activities are now seen as being less crucial for the survival of the college than they were in the last decade. During the 1980's a position was added to OIR and a Director of Enrollment Management was appointed. Both were involved in activities aimed at maintaining enrollment in the face of a declining college-going pool. Both positions have been eliminated. Many of these activities are now seen as dispensable, especially since the college responded to budget cuts by decreasing enrollments to stabilize student/faculty ratios and maintain student quality.

2. The college has converted to a VAX cluster computing environment, which supports an Oracle relational database. Access to the mainframe is more widely distributed, and the query language is more user-friendly. This improved technology required the re-evaluation of the OIR's role in administering the Student Database and providing assistance with the design of database queries.

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* The author acknowledges the other OIR task force members who collaborated in the OIR evaluation and the writing of the report, namely, Janet Edwards, W. Raney Ellis III, Malcolm Fairweather, Henry Morlock, and Helen Rock.

3. In response to fiscal constraints, the college administration views the OIR as providing minimal essential data. Formerly, OIR initiated research studies, such as student outcomes assessment. Such research is now given lower priority for the OIR than the more essential external and internal reporting activities. Decentralization of the research portion of the IR function is viewed as desirable both politically and fiscally.

II. Task Force Composition

The task force consisted of members representing a wide cross-section of interests in data and research. Members included the Director of Enrollment Management, Director of Computing Services, Director of the Center for Earth and Environmental Science, the remaining Associate for Institutional Research, the OIR secretary, the Coordinator of Assessment,and a faculty member serving as a liaison from the Resources and Planning Committee of the Faculty Senate.

III. Task Force Procedures

The task force met weekly for 8 months. During this study process the task force reviewed the current status of OIR, including its historical context, activities, and patterns of interaction with other offices on and off- campus. The task force determined which activities were mandatory and which voluntary and prioritized the voluntary activities. Members of the OIR staff were interviewed intensively about the nature and importance of past and present activities of the OIR.

An inventory was taken of "reporters" that had been designed by OIR and the Computer Center to assist staff with database queries on the former computer. This was done to assess the future responsibilities of the OIR for assisting users with designing database queries for the VAX computer.

Task Force members read a variety of articles, monographs, and campus planning documents in order to familiarize themselves with the field of institutional research and conceptions by others about the organization of IR offices or functions. Among the articles read were: Organizing Effective Institutional Research Offices. From New Directions for Institutional Research, Jennifer Presley, ed, 1990; The Role of Institutional Research in Implementing Institutional Effectiveness or Outcomes Assessment. AIR Professional File publication, 1990; The Structure and Functions of Institutional Research Offices within NEAIR. Paper presented at NEAIR, Volkwein et al., 1989.

From these and other articles and from discussions, the Task Force designed an Institutional Research Matrix with which to organize questions and findings, see Figure 1. On the X-axis of the chart are the various IR tasks, such as analyzing data and interpreting results. The Y-axis of the chart contains a broad taxonomy of types of IR

FIGURE 1.

Institutional Research Matrix

TASKS

Institutional Research Activities	Planning for IR at Institutional level	Internal Consulting, Assistance	Designing Systematic Research or Data Collection	Collecting Data	Analyzing Data	Interpreting Results	Disseminating & Communicating Data, Results, & Interpretations	Self-Evaluation
External Reporting (Required)								
Process Evaluation Studies								
Impact Evaluation Studies								
Other Reporting								
Projections								

activities. Activities were conceived in five broad categories: 1), external reporting, such as IPEDS and enrollment reports to SUNY; 2), process evaluation studies, or "formative evaluation", to assess whether the service is being effectively delivered, e.g., the evaluation of the General Education program; 3), impact evaluation studies, or "summative evaluation", to assess whether the program is accomplishing its goals, e.g., Value-added student assessment; 4), other reporting, including optional external reporting and internal management information; and, 5), enrollment and revenue projections. With this matrix, campus-wide IR activities and functions could be analyzed, and past and future OIR roles could be identified within this overall scheme. This would ensure that all of the important IR activities were being done by some campus unit and that no important gaps existed. Shifts in emphasis on different types of tasks could also be described, e.g., the shift in OIR from assisting others with collecting data to engaging in more planning, interpretation and consultation.

The task force decided to interview the clientele served by the OIR, utilizing the IR matrix to help interviewees and task force members organize their questions and responses. A letter of invitation was composed by task force members and was sent to a broad spectrum of campus IR users. Interviewees were asked to consider the following questions before and during the interview session:

1.In regard to institutional research (IR) activities and tasks, what does OIR do for you? How frequently?

2. What research do you do for yourself? How often?

3. In regard to IR activities and tasks, what do other offices do for you? Who does it? How frequently?

4. What gaps exist in research activities, i.e., what is not being done that needs to be done? What benefits accrue to the college if these are done? What are the costs to the college if these are <u>not</u> done?

5. What changes would you like to see in your relationship with OIR?

6. Are there activities that have been "lost" which need to be done again? What is done now that is not useful?

Interviewees were asked to respond to this structured interview, but ample time and freedom were allowed to discuss their needs, frustrations and hopes related to IR. Approximately 50 faculty and staff attended one of 9 group- interviews, each lasting an hour and a half. Interviews were tape-recorded with the permission of interviewees. Also, notes were taken on a lap-top computer so that two verifiable records of the interviews were kept. Computer minutes were sent to task force members via E-Mail. On several occasions these two records of the interviews were consulted to resolve disagreements among task force members about the wording of a response from an interviewee.

IV. The Task Force Report

The Task Force spent many weeks writing the final report, which was later presented and defended before the Executive Council of the college. The report was also referred to in the Middle States Accreditation Report. The Task Force report consisted of a description of procedures and assumptions, followed by a review of OIR activities and recommendations for an agenda and staffing patterns.

A. Findings: The review section described the findings from interviews with OIR staff, the "reporter" inventory, and from the campus needs assessment resulting from the group interviews. The review section was divided into three sections: First, past and present activities were described, along with their benefits to the college and comments about future changes. Second, activities that had been lost due to reductions in staff were described. The cost of not continuing some of these activities was discussed. The disadvantages of decentralizing such sophisticated research as student assessment, where expertise in research design and statistical analysis are required, were discussed. Third, certain common needs for data, research and assistance were expressed in the group interviews. Four categories of activities represented new and emerging roles for OIR: l), The need for decentralized access to a central database; 2), Serving as a clearinghouse for both internal and external reports and research, which included the formation of a directory; 3), The formal assignment of responsibility for providing research design consultation; and, 4), Providing consultation about the choice and use of statistical analyses and SPSS.

B. Recommendations: Recommendations were divided into two major sections: one dealing with activities and roles, and the other with staffing patterns and organizational location of the OIR. It was recommended that highest priority be given to continuing currently performed and required reporting activities. Second in priority was the re-
establishment of certain vital activities lost due to staff reductions, such as attrition/retention studies. Research consultation services were given third priority.

Recommendations for staffing were divided into short- term and long-term. The short-term recommendation recognized the difficulty of the present fiscal situation of the college. The minimum support needed to continue essential reporting activities was described. Activities that were possible or impossible given this minimal staffing level were listed. The long-term recommendation called for increasing staff levels as soon as possible, to contain a director with training in evaluation research, an associate, an assistant, and a full-time clerical position.

Three possilibities for placement of OIR within the organizational structure of the college were considered. It was felt that the placement of OIR should ensure that the staff was kept well informed about institutional policies and that they serve an advisory role to policy makers. An advisory group of faculty and staff with expertise in IR was recommended to provide advice to the OIR staff and help OIR with periodic self-studies such as this task force process.

V. Advantages of the Task Force or Self-Study Process

1. Consciousness-Raising

Several task force members began with little familiarity with the myriad of research activities engaged in by the OIR and their importance to the college. The interviews enlightened both interviewees and task force members about how useful certain activities had been to campus members, the expectations and needs for even further help with accessing IR information, more interpretation of data, and for statistical and research consultation services. By the end of this investigation all members of the task force as well as many interviewees were adamant about the vital importance of IR activities to the college and the need for increased staffing of the OIR.

2. Increased visibility of the OIR

The interview process heightened the visibility of the OIR, which had become a highly efficient but low profile operation at Plattsburgh. Most of the OIR's communication was done with the executive branch of the college. Had we had broader communication and support across the campus, we may have avoided the severe staff cuts in OIR. In this regard one of many positive results of the interviews was a greater awareness of OIR activities and a modified conception of the OIR as being a service rather than an adversary or arm of the administration.

3. Written support for the OIR

The task force report is on record. Well respected faculty and administrators on the committee came to a clear consensus that the OIR needed to be rebuilt as soon as possible, and that its functions remain vital to the survival of the college. The report has been referred to in the Middle States Accreditation Report. This provides clear, written support for the eventual rebuilding of OIR.

4. A consensual list of priorities of OIR activities

Priorities were determined by a broad, cross-section of campus constituents and are clearly identified in the report. Listings of activities that are possible or impossible given certain levels of staffing provide a clear guideline for the OIR staff and help them refuse requests of lesser consensual priority. Listing activities that cannot be done demonstrates the negative impact on the college of maintaining too small a staff in the OIR.

5. New perspectives on old problems and techniques

Interviewing a wide variety of campus members yielded some interesting new perspectives and suggestions. Reports or formats of presentation that were reported as not useful to recipients of the data could be considered for redesign. Generally, people found OIR reports useful and wanted more, not less, information with more written and verbal interpretation and graphic presentation.

VI. Conclusions

The task force investigation was time-consuming and, at times, painful and threatening, but, ultimately it was a very enlightening, helpful and supportive process. It is recommended that your office initiate the self-study process yourself before you are placed in the position of having your staff cut. It is easier to maintain staff and improve methodologies than to rebuild an office in these times of fiscal constraint. Such periodic self-evaluations may ensure your efficiency, visibility and survival.

Multi-method Design in Assessing Campus Culture

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Introduction

The culture of an institution is built around its history and, as Peterson and Spencer (1990) state, "focuses on the deeply embedded patterns of organizational behavior and the shared values, assumptions, beliefs, or ideologies that members have about their organization or its work." The climate of an organization, although sometimes used as a synonym for culture can be seen to be more changeable than culture. Peterson and Spencer (1990) define it as "... the current common patterns of important dimensions of organizational life or its members' perceptions of and attitudes toward those dimensions." They liken the difference between culture and climate as being somewhat analogous to the difference between sociology or anthropology and cognitive psychology, although, as Schein (1990) points out "...the deepest level of culture will be the cognitive in that perceptions, language, and thought processes that a group comes to share will be the ultimate causal determinant of feelings, attitudes, espoused values, and overt behavior."

At the outset, the current research was an attempt to assess the culture of an urban community college. The initial impetus came from a concern over an apparent high rate of faculty and staff (administrative and supportive) turnover. This followed a recommendation that the college may have been hiring personnel whose personalities did not fit with the college's culture, as suggested by Hymowitz (1989).

It should be stated that the college serves a very ethnically diverse population. Over 75% of the student body can be considered "minorities" - in the Fall of 1990, 22% were black, 22% white, 46% Hispanic, 7% Asian/Pacific Islanders (Indian, Pakistani, Filipino) and about 5% foreign and "other" (there is also a large Arabic population for which there is no conventional category; they have been known to categorize themselves whites, foreigns or others!).

Method

The present research utilized three different data collection methodologies: 1) one-to-one interviews; 2) an open-ended questionnaire; and, 3) focus groups. The responses to the questionnaire were scaled using multi-dimensional scaling in an effort to quantify the information that was received.

Because the primary concern of the research was to try to understand the perceived high rate of personnel turnover, no information was gathered concerning student culture.

The interviews were of senior administrators and were initiated with the straightforward question "What are the beliefs and values shared by the College personnel?" Other questions concerned "local heros" and "rituals" performed during our everyday activities. One problem that arose was how to define a college-wide ritual. This was solved by specifying that they are "goal directed activities that are extraneous to the actual goal of the activity." For instance, there is a monthly meeting of the governance body of the college - the Academic Council. Prior to every meeting there is a fifteen or twenty minute gathering of the participants for coffee and cookies, where departmental business is often discussed. Also, certain faculty members always sit by the windows during the meeting and one particular faculty member always introduces a proposal.

The next step in the design was the open-ended questionnaire. These were distributed to department heads, program coordinators and deans. It asked three questions: 1) How long have you been employed by the college? 2) What do you perceive as the culture of the college? and, 3) What practices, formal or informal, do we perform on a daily basis in conducting our daily business at the college? The last question was more or less a reiteration of the second and many of the responses reflected this similarity.

In order to scale the responses they were copied onto slips of paper with one response per slip. The slips containing the response statements were shown to individuals who were acting as judges who were asked to rate the similarities of the statements utilizing a scale of one to four, with one being "not similar" to four being "very similar." Each statement was paired with every other statement in this fashion. The ratings were averaged and a matrix of average similarities was constructed. This "similarity" matrix was then "multi-dimensionally" scaled utilizing Systat's MDS module.

The focus groups were the last step in the design. They were comprised of administrators, faculty members and supportive staff. The groups were constructed so that individuals with either similar terms of employment, positions, constituencies or interests could be brought together. The facilitator began each session by posing the following question: "What is there about the environment of PCCC that sets us, as employees, apart from the external world once we walk through the door in the morning to begin work. What practices and beliefs do we share that set us apart and make us unique?" If that was insufficient to stimulate a discussion, it was followed by an attempt to establish dialogue based on the information obtained in the interviews. Although transcripts of the focus groups would have provided the best record of the proceedings, hand written notes of key points and quotes had to be utilized in the analysis. Personnel from the College who did not participate in the groups were later asked to assess the statements and other information obtained from the groups for common themes and topics. This also helped establish inter-rater reliability.

Results

Interviews

The first part of the methodology, the interviews, revealed that there was an milieu of informality that permeated the daily activities. Examples of this include communication networks (i.e., lines of communication) and scheduling appointments while in the cafeteria or while passing through the halls. There are also rituals that further suggest an atmosphere of casualness within the college, for example, serving coffee and cookies just prior to the monthly Academic Council meetings. There is also the annual picnic (for all personnel) and a "rite of passage" for faculty members who were recently granted tenure -the annual tenured-faculty dinner. There are also informally arranged seating patterns at functions like the Academic Council meetings and the annual convocation - certain faculty members and deans traditionally sit in the same places each year.

Intra-departmental cultures were also implied during these interviews. The English-As-A-Second-Language (ESL) department, for example, not only has its discipline-based subculture but one that is greatly affected by the students that it serves. A majority of the students within this department are from Caribbean and Latin American countries. It was brought out in one of the interviews that people in many of those countries give Christmas gifts to teachers. This poses a very unique problem to many teachers in that department - whether or not to accept those gifts. And, it was noted that, within all of the departments, close relationships develop between the students and faculty.

A feeling of community has been forwarded within the college through the holding of the annual college-wide picnic and a college-wide Christmas party. Both of these events have been either totally or partially funded by the college through the years.

One thing that was brought up in the interviews was the fact that the College has gone through many reorganizations in its brief history (it was founded in 1968). It has also been the object of many controversies since that time. These were spoken about as being part of the culture of the College, and indeed, they entailed important aspects of the institution's history and can be considered aspects of its culture. If seen as organizational stressors, they might have served to unify the college community, too.

Questionnaire

The response rate of the questionnaire was disappointing. Of the 39 questionnaires that were distributed only 12 were returned (rate = 31%). The statements received as responses to the question "What do you perceive as the culture of the college" are in Appendix 1. Responses to the question "What practices, formal or informal, do we perform on a daily basis in conducting our daily business at the

college?". Fifteen "judges" were asked to rate the similarities of the statements and these ratings were then averaged and the similarity matrix constructed (Table 1). Eighteen judges rated the third question and the similarity matrix of their responses can be found in Table 2.

The result of the first multi-dimensional scaling produced one through three dimensional solutions with stress values of .40, .16, and .11. Because the stress level was not greatly reduced by the inclusion of the third dimension, and a suggested rule for obtaining stable dimensions states that there should be "..at least twice as many stimulus pairs as parameters to be estimated,..." (Kruskal and Wish, 1984), the two-dimensional solution was adopted[1] (Table 3).

Table 1

Similarity Matrix of question asking "What do you perceive as the culture of the college."

	A	B	C	D	E	F	G	H	I	J	K	L
A		1.08	1.00	1.23	1.08	2.00	1.15	1.77	2.08	1.31	1.38	1.31
B			2.85	2.92	1.85	1.23	2.77	3.08	2.92	2.08	1.54	2.31
C				3.85	1.69	1.15	3.31	2.77	2.77	1.62	2.38	2.00
D					1.38	1.15	3.38	2.54	2.54	1.46	1.46	2.00
E						3.00	1.46	1.15	1.62	1.62	2.31	1.46
F							1.69	2.00	2.31	1.69	1.77	1.38
G								3.31	2.69	1.46	1.15	2.31
H									2.31	1.38	1.62	2.77
I										1.85	1.38	2.08
J											2.69	2.00
K												1.38

[1] The algorithm suggested by Kruskal and Wish (1984) for determining the number of dimensions that can be determined, for a half matrix without a diagonal, as used in this study is: $I(I-1)/2 \geq 2IR$

Table 2

Similarity Matrix for Question 3

	A	B	C	D	E	F	G	H	I	J	K
A											
B	2.33										
C	1.00	1.11									
D	2.83	3.11	2.56								
E	3.44	3.06	1.33	4.33							
F	4.06	2.83	1.17	3.02	3.50						
G	2.44	3.00	1.17	3.06	3.94	3.89					
H	1.22	1.00	5.61	1.44	1.44	1.33	1.11				
I	1.33	1.39	4.78	2.78	2.22	1.83	1.33	4.11			
J	3.50	3.67	1.22	2.56	3.83	2.67	3.44	1.28	2.33		
K	2.00	2.89	1.78	2.78	3.06	2.83	3.11	1.44	2.22	3.39	

These dimensions were then interpreted in a fashion analogous to that which is used in naming factors in a factor analysis. It can be seen that there are definite clusterings of the responses along the dimensions, especially along dimension 1 (Figure 1).

The first dimension (dimension 1) was interpreted as having to do with ethnic diversity being an integral part of the college's culture. At one end of the dimension are statements describing the many ethnicities that are present on campus and the college personnel's efforts at understanding and working with them. At the other end of the dimension are statements saying that the college does not have a unique culture. This dimension alludes to the three facets as described by Kuh and Whitt (1988), that there are student, faculty and administrative cultures, but instead of being three exclusive entities they are all interacting closely at this college.

The second dimension was interpreted as having to do understanding the question. At one end are statements dealing with inability to answer the question, and at the other end are some very specific statements concerning administrative practices. It is this second dimension that contains some of the information that motivated the study.

In an effort to further understand the dimensions and obtain a more systematic (and hopefully, reliable) definition of the dimensions, the third question on the questionnaire - "What practices, formal or informal, do we perform on a daily basis in conducting our daily business at the college?" - was then subjected to a multidimensional scaling procedure. It was also hoped that this procedure would statistically support the dimensions' interpretation. In that effort, an additional step of regressing responses from bi-polar scales, with continua ranging from one to five, based on the dimension interpretations from the first scaling, was added to the process (Appendix 3). These additional data were gathered during the experimental judging phase. The means of the responses (Table 4) to the bi-polar scales were then regressed onto the dimension coefficients. A two-dimensional solution was also accepted on this scaling for the same basic reasons as mentioned previously (Table 5). The stress on the two dimensional solution was .154.

All of the questionnaire items explained significant amounts of variance (Table 6) when using the conventional .05 level of probability. But, because multiple tests were undertaken a Bonferroni procedure (i.e., dividing .05 by the number of tests) was applied. This lowered the alpha level to .008. At that point, two off the bi-polar scales obtained significance. The first, Q1, expressed the demonstration of knowledge of the campus culture and the second, Q4, demonstrated knowledge of the question originally asked.

Table 3
Dimension coefficients

Statement	DIMENSION	
	1	2
A	-.94	1.23
B	.55	-.20
C	.71	-.39
D	.97	.03
E	-1.15	-.46
F	-1.14	.36
G	.81	.36
H	.57	.58
I	-.06	.49
J	-.10	-1.17
K	-.60	-1.03
L	.38	.20

Stress of final configuration = .16023

Figure 1
Dimensional map of statements to Question 2

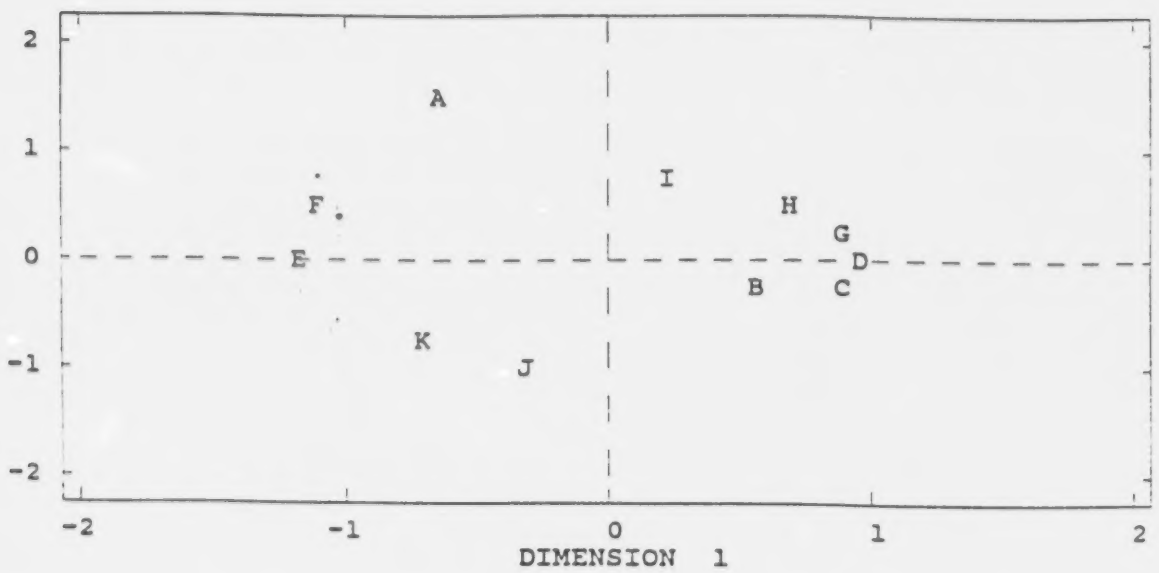


Table 4
Means and Standard Deviations of Bi-polar scales

	Mean	S.D.
Q1	2.631	.429
Q2	2.409	.528
Q3	2.303	.773
Q4	2.530	.555
Q5	2.101	.711
Q6	2.293	.794

Table 5
Scaling Result from Question 3

Statement	DIMENSION	
	1	2
A	.58	.92
B	.82	-.73
C	-1.45	.04
D	-.04	.20
E	.41	.12
F	.68	.59
G	.92	.04
H	-1.47	.07
I	-1.13	-.03
J	.59	-.37
K	.09	-.84

Stress of final configuration = .1542

Table 6
Regression weights on dimensions

	Regression Wts				
	DIM1	DIM2	R2	Sig	$Angle_{dim1}$
Q1	.828	.113	.82	.001	34
Q2	.517	-.829	.62	.021	59
Q3	.542	-.500	.58	.033	58
Q4	.935	.039	.86	.000	21
Q5	.563	-.296	.65	.014	56
Q6	.729	-.170	.62	.020	43

Using the method suggested by Kruskal and Wish (1984) for interpreting dimensions by means of linear regression, the arccosine of the beta weights were found and applied to the two-dimensional plot that was constructed by the scaling procedure (Figure 2). It can be seen that Q1 and Q4 (especially, Q1) almost coincide with the horizontal axis and two of the items practically lie on the plane created by Q4. This led to the deduction that the first dimension was a strong to weak understanding of the task involved, i.e., answering the question "What are the beliefs, values and attitudes of the College..."

Interpreting the second dimension was a little more difficult. However, when the three criteria - variance explained, probability obtained (i.e., significance) and regression weight - were employed, Q2("Daily office activities affected by student personalities or characteristics"), emerged as the underlying dimension of the responses. There again, two of the items nearly coincided with the plane resulting from plotting the arccosine of the regression weight of Q2 (Figure 2). Rather than this dimension ranging from strong-weak it was judged as being general-specific. That is, the responses that fell along this dimension contained references to the manner in which students affected the position occupied by the respondent, one response was global the other specific to the particular office.

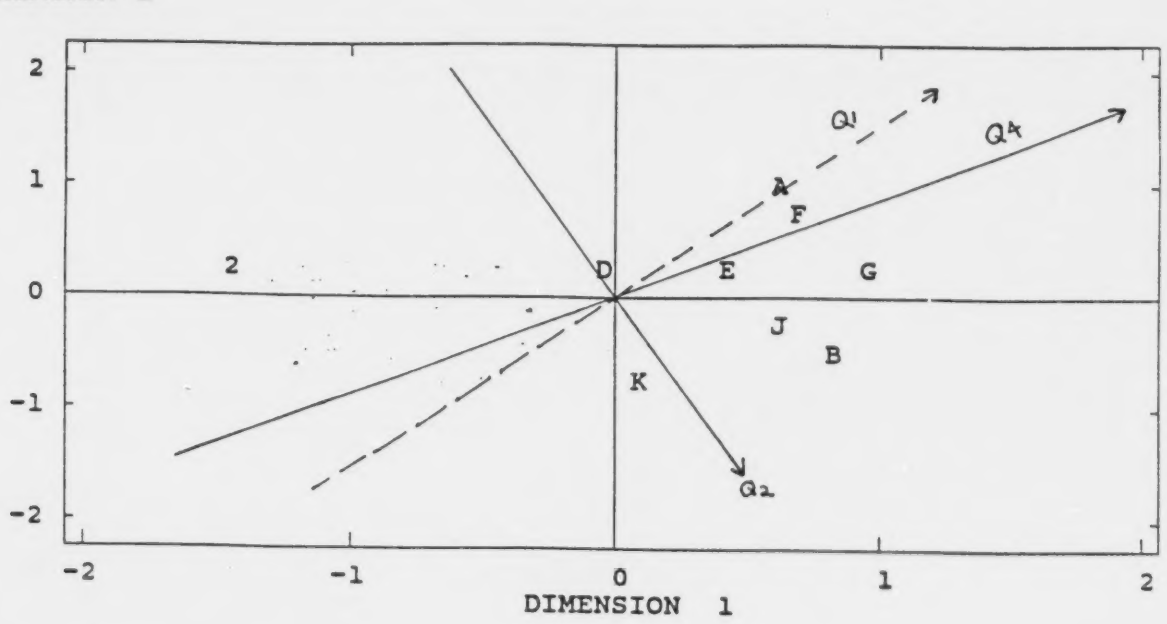
These results do not confirm the results of the first scaling but do not entirely refute them, either. The same dimensions emerged but in a different order. An interesting result of the second scaling, though, suggests that there may be a third dimension. Q5, "Faculty and students share a common concern" explained a high amount of variance but did not obtain a high beta on either of the dimensions. More, and better quality data from the questionnaire may have better revealed this third dimension.

Focus groups

The focus groups brought out that there were changes occurring at the college, and indeed, there were some very significant changes that had happened in the time between the interviews, the questionnaire and the focus groups. For one, the college experienced accreditation problems. This was followed by the resignation of the President, the Dean of Faculty, and the Dean of Business Affairs. One of the products of these events may have been an exacerbation of any interdepartmental "friction" that may have existed, which can be interpreted as changes in the climate of the college. This allusion to friction was the first time any interdepartmental conflict was mentioned. However, one of the responses to the questionnaire also expressed the perception of superficial warmth.

The participants in all of the groups said they shared the feeling that they were doing something that was socially necessary, and that they received intrinsic satisfaction and reward from performing their services for a clientele that was in great need of those services.

Figure 2
Dimensional Map of Question 3



The number "2" in the upper left quadrant portrays two items occupying a single space, C and H.

Some also stated that the students had an effect on the way their offices were run, for example, by showing up late for appointments or not submitting documents in a timely fashion. In both instances, there were ramifications with regard to reporting requirements mandated by external agencies or in the provision of support services.

The focus groups also revealed the perception that knowledge of college policies and processes were an important aspect to getting things done. This is in opposition to the atmosphere of informality revealed by the interviews and can be interpreted as another change in the climate of the college. It may also be considered to be what was previously termed as an "informal communication network" now being called "side-stepping" - connoting something entirely different.

Along with this was the perception that some departments were favored over others.

Another thing that was revealed in these sessions was the feeling that there was not enough promoting of staff personnel. If a person wanted to advance his or her career in some way they would have to leave the college. Moreover, there was the feeling that risk-taking was no longer valued, for example, in cases of program development, enhancement or enlargement.

Discussion

The research was purely exploratory and tried to obtain concordance across three methodologies. In some aspects it succeeded but, more importantly, each part contributed unique information while adding to what was learned from the others. The interviews suggested that there was a high incidence of informality on campus and directly addressed definite aspects of culture as defined anthropologically - rituals, a "rite of passage" and history. They also supported Kuh and Whitt's (1988) assertions of three levels of culture that exist in institutions of higher education. And they demonstrated how a student subculture can effect a faculty subculture.

The focus groups addressed the informality but were not as positive in their regard for it as were the interviewees. The groups also revealed some of the animosity that existed on the campus between administrative units and especially in regard to student culture effects on administrative functioning. (Some of the sessions functioned as opportunities to cathect job frustrations!)

The questionnaire provided insights not only into the interaction of the student culture and the faculty culture but introduced more of the aspects of the administrative culture into that "interface" of cultures. It also demonstrated that some of the administrators needed more clarification concerning what was meant by the term "campus culture".

Although both scaling procedures revealed at least two dimensions, the respective dimensions exhibited slightly different qualities. The first scaling procedure produced one dimension that alluded to the interaction of student, faculty, and administrative cultures being aspects of the campus' overall culture. It ranged from distinct in this interaction to there being no campus culture existing at all. Evidence of this is in statements expressing a great deal of cultural diversity having high positive coefficients on the first dimension and statements expressing a lack of cultural identity having high negative coefficients on it.

The second dimension, from the first scaling, was interpreted as having to do with understanding the question. It ranged from providing information about college-wide administrative practices to not understanding what the question was trying to find out. It indicated that there was a definite administrative culture but did not

define it in terms of its artifacts - beliefs, values, or rituals[2] - aside from the mention of a perceived "in-group", the use of memos and informal meetings.

The second scaling produce a first dimension that was similar to the second one produced in the previous scaling procedures. It ranged from having a strong-weak understanding of the question. The second dimension resulting from this scaling was one that was general to specific with regard to administrative practices and the mingling of the student, faculty and administrative cultures.

The focus groups addressed the concept of an "in-group" through assertions that some departments were favored. They, too, expressed the blending of the student culture with the administrative culture when the group participants stated student practices impacted on the offices daily activities. These groups also hinted at a change that may have either taken place, or was in process, in the climate of the institution when they addressed the perception that risk-taking was not being rewarded. Insight into a shared value system was gained when the group members spoke about intrinsic reward from providing a service for a clientele in need of that service (that may be something that is expected of administrative or faculty personnel - but not included in the job descriptions!).

Conclusion

The three stages of the methodology provided many similar findings. The aspects of informality which came out in the interviews, did not appear as significant a facet of the dimensions uncovered in the scaling processes (except in an instance that may be considered as a contaminant of the data because the respondent was a participant in previous discussions), and was only alluded to in the focus groups - and there it had some negative connotations. However, features of that informality were used in describing a sense of community by the individuals that referred to it in the interviews. For example, the de facto seating arrangements, the conversations and business that was transacted in the coffee-and-cookie sessions prior to Academic Council meetings, and business conversations taking place in the hallways were all spoken about "good-naturedly".

The College's small size, with regard to full-time faculty and personnel, and history of reorganizations, may have played a role in the resultant informality. It may also be an aspect of the climate and culture, if it is possible for something to exist in both areas because it is the product of a cognitive phenomenon. If this is the case, it is interesting that it did not emerge from the scaling but was addressed in the other two methodologies.

The multi-cultural aspects of the student body, and especially their impact on the daily activities of the academic departments and administrative offices, emerged as a

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[2] One of the questionnaire's respondents was present at a briefing of the results of the interviews and fed back some of the information that was reported at that briefing

strong characteristic in the results of all three methodologies but to different degrees, depending on the methodology. Because of its geographic location, multi-culturalism has been an integral part of the College's history and it can safely be assumed that this is a definite characteristic of the College's culture. Another direct aspect of the culture of the college is the tightly inter-twined relationship that exists between the three cultures because this, too, emerged from all three methods.

If better definitions were presented along with the questionnaire there might not have been as much ambiguity present in some of the responses. Better wording within the statements would also have been helpful in learning about the climate (and, an improved response rate would help, too).

The interviews were useful in learning about the culture while the focus groups may be more sensitive to the changeable aspects of the climate of the organization, in addition to the cultural ones.

The initial question that stimulated this research had to do with faculty and staff turnover. In the absence of information directly from the individuals who have left the College's employ, one can only speculate that, if there were mismatches of culture and personality, those who left did not enjoy working in an informal environment that had been subject to much controversy and was heavily influenced by a multi-cultural, multi-racial student body. The ability to obtain intrinsic reward may also play a part in retaining personnel, but evidence of that only resulted from one of the methodologies, the focus groups. And that methodology, it was judged, indicated more about the climate of the institution than the others.

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Perceptions of College Experience and Goal Achievement Among Nonpersisters and Graduates

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Introduction

With Accountability the watchword of the 1990s, institutional research offices are under pressure to provide figures on student retention and student outcomes for a variety of reports, internal comparisons, and assessment projects. When we are asked to provide figures on graduation, persistence and dropout, the implicit assumption is that we are dealing with student success and, in the aggregate, institutional success. But while it is easy for those familiar with institutional research to argue, as they have, that measuring successful outcomes is not a simple matter of taking the total number of incoming students and subtracting the number of outgoing students, it is more difficult to identify what formulas should be utilized. This is partly because the terms used to identify student outcomes, such as completion and retention, do not have singular definitions, partly because college students, especially those at Community Colleges, are not singular in nature, and partly because "successful outcome" is not a singular concept. In short, success means different things to different people.

In 1975, Tinto brought together the scattered research that had been done on persistence and dropout behavior among post-secondary students, and presented a complex model in which student characteristics interact with institutional characteristics to affect student outcomes. He observed that the same outcome measure (completion, transfer, etc.) could mean different things to individual depending both on perceptions and initial goals, so that retention research which focused on student groups categorized by outcome alone was doomed to failure. In a follow-up paper, Tinto (1982) noted that the difficulty of developing a model of student attrition was even more acute in the 2-year college sector, where multiple missions result in a proliferation of student intentions and a variety of educational experiences.

The argument that student goals and perceptions should be utilized in outcome studies is generally accepted in principle, but it has been difficult to apply in fact. Students have been found to be unrealistic in their aspirations (Aquino, 1989, 1990) and not fully aware of their motivations (Lenning, Sauer & Beal, 1980). Student perceptions have not generally correlated with objective, academic outcome measurements. Webb (1989) found only low correlations among independent

variables such as students' goals, employment plans, transfer plans and degree intentions, and outcome variables that included degree completion, GPA, and credits earned among degree and non-degree/successful and non-successful students.

While there is a strong common-sense case for the idea that regardless of goals or perceptions, students who do not achieve passing grades are unsuccessful, the same case cannot be made for degree completion, especially among two-year college students. We must, by the very definition of our mission, accept that not everyone wants or needs a degree. Even those who enroll in degree programs are not all intending to complete a degree; students enroll in established programs to get preferential registration for certain classes, or because they are interested in a sequence of courses within a program. Realistically, even among those whose goals include a formal award, a certificate or degree is not always an end in itself; the degree is wanted for a reason.

In this study the Community-Technical Colleges (CTC) of Connecticut surveyed students after they had stopped attending to gauge their views of their college experiences in relationship to the achievement of their goals. Information was sought as to what goals these students had when they began college, whether they felt they had achieved their goals, how this related to academic measures of success, and whether any other college experiences could be associated with goal achievement or non-achievement. A similar survey was administered to both nonpersisters and graduates. The objective was to help define what a successful college experience meant to different groups of students, and to extrapolate from that information variables that could be reasonably incorporated into outcome measures.

Methods

Survey Populations

The five Community and two Technical Colleges participating in the study are all members of the combined public two-year higher education system in Connecticut which consists of 12 Community and 5 Technical Colleges in total.

The nonpersister population was defined as those students who were enrolled at one of the seven colleges in the fall semester of 1989, but failed to return in any of the succeeding 3 semesters (spring 1990, fall 1990, spring 1991). At the larger institutions, this resulted in too large a sample to be practical for follow-up purposes. In those cases, a survey was mailed to a randomly selected subset of the individuals identified.

The graduate population was defined as those students who had completed an Associates Degree or an approved Certificate program between July 1, 1989 and June 30, 1990. All of the CTC graduates are surveyed annually for a variety of purposes; the graduates in this study were part of this year's system-wide follow-up. While all 17 colleges annually survey their graduates, only the graduate respondent from the

colleges which also participated in the nonpersister survey are included in the analyses in this paper.

Survey Instruments

The original survey was developed by the CTC Institutional Research Committee to gather information on graduates' current employment and educational status. Most of the objective questions were designed to collect specific information for various federal reports, such as the Vocational Education Completers Report. Additionally, graduates were asked to rate various aspects of the college such as course work, faculty, counseling and facilities for internal planning purposes. The survey has been administered system-wide each year since 1985, and has undergone several revisions.

The first part of the survey administered to the graduates currently consists of 23 multiple response questions about attendance patterns, current occupational status, and views on whether their education has helped them in their current pursuits. The second part of the survey asks them to agree or disagree with 68 statements about the college. All of the statements are positively phrased so that agreement denotes a favorable view of that aspect.

The survey administered to the nonpersisters was developed from the graduate survey. The 68 opinion questions were identical to those on the graduate survey, while the multiple response section was shortened, and in some cases questions were rephrased to be appropriate to the population. A question concerning reasons for not returning to the college was added, as was a question concerning intentions to return to higher education.

Data Collection

The surveys were sent to nonpersisters in April of 1991. A total of 3569 surveys were mailed out, and 505 were returned complete for a return rate of 14.1%. Several of the returned surveys were missing the information that identified original program of enrollment, GPA, credits and other demographic information. These individuals were excluded from the analyses, leaving 487 surveys.

Surveys were mailed to graduates in November of 1990. The surveys were followed by a reminder letter and a second survey was mailed to non-responders in January 1991. Among the 6 colleges included in this study, 1263 graduates were initially mailed surveys, with a total of 725 responding to the two mailings, for an overall response rate of 57%.

Results

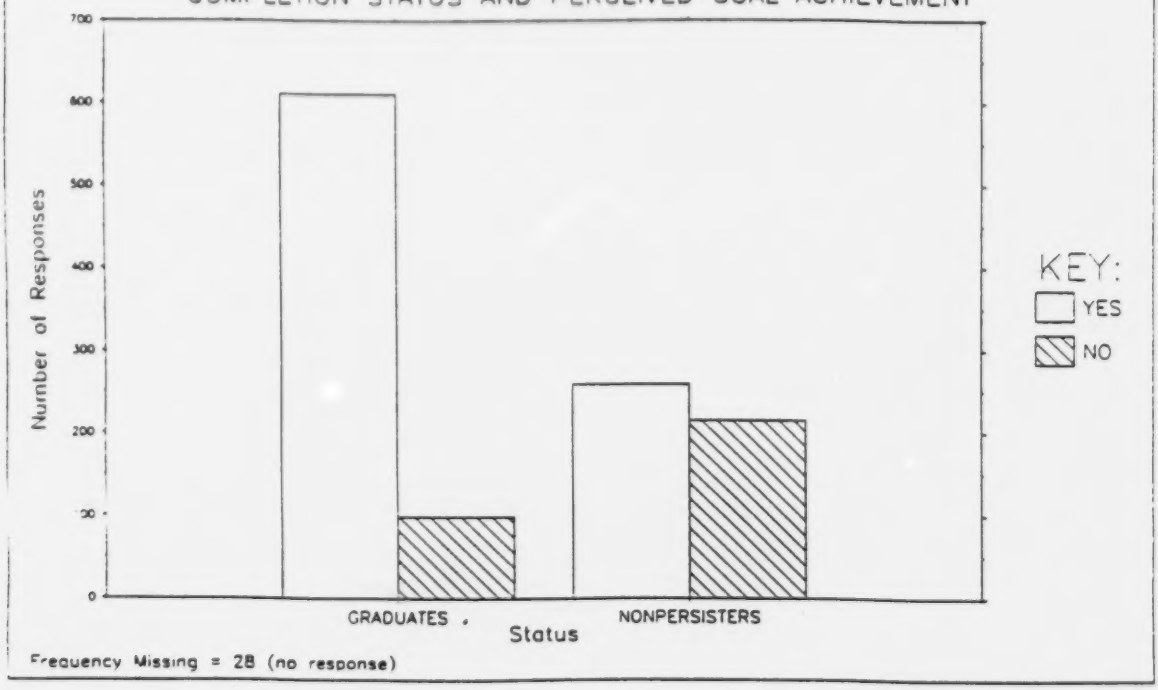
Perceived Goals and Achievements

Using conventional institutional outcome measures, the graduates would all be counted as successful completers, while the nonpersisters would be non-successful non-completers. Using student reported goal achievement as a measure of success yields different results for both graduates and nonpersisters.

When asked if they felt they had achieved their primary goal, 84% of the graduates said yes, and 54% of the nonpersisters said yes. Fewer graduates but more nonpersisters perceive that they are successful than traditional measures indicate. For some of them, at least, completion of a degree was not the indicator they used to measure their own outcomes.

In fact, only 60% of the nonpersisters were enrolled in a degree or certificate program at the time that they withdrew. A different outcome measure must be adopted for at least the non-degree seeking students. Looking again strictly from an institutional point of view, a commonly used measure is that of grade point average;

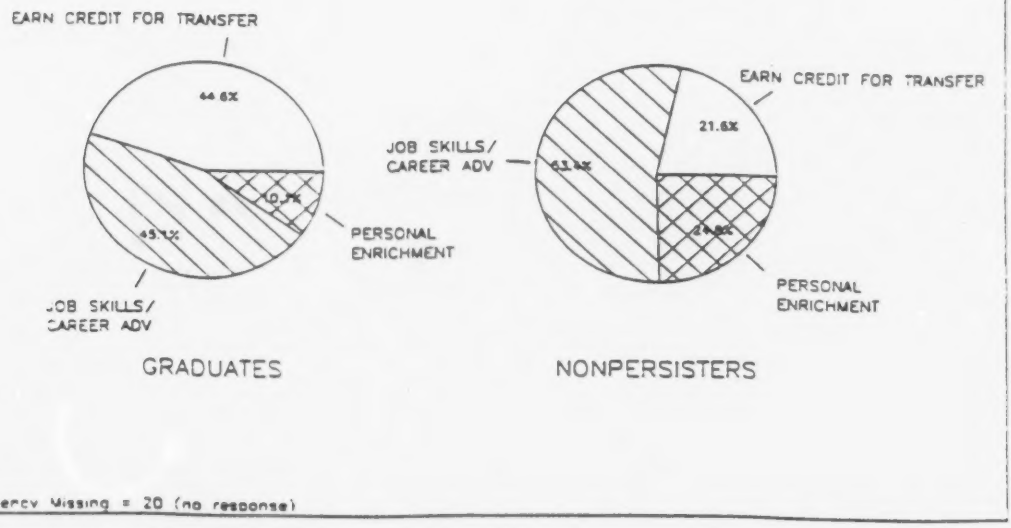
FIGURE 1
COMPLETION STATUS AND PERCEIVED GOAL ACHIEVEMENT



among non-degree nonpersisters, 57 (29%) did not achieve at least a passing GPA of 2.00[1] so that 71% could be considered to have been successful. This was somewhat closer to the students own perceptions; among non-degree enrolled nonpersisters, achieving or not achieving a passing GPA corresponded to perceived goal achievement in 64% of the respondents. A passing GPA was not significantly related to perceived achievement among degree enrolled nonpersisters - in only 55% of these students did the two factors correspond. Overall, perception of achievement corresponded to passing grades in only 58% of the nonpersisters.

Among the nonpersisters, 24% stated that their primary goal in attending a CTC was to earn credit to transfer to a four-year institution, 20% came primarily for personal enrichment, and a majority, 54%, came for career related reasons (prepare for career change, receive occupational training to enter work force, learn skills to improve in their current careers). Among the graduates, 44% were primarily interested in earning transfer credit, 11% in personal enrichment, and 45% stated that their primary reasons were career related. Reported goal achievement among the nonpersisters in these goal groups ranged from 41-77%, while for graduates, perceived achievement varied less among the different goal groups; from 83-97%.

FIGURE 2
COMPLETION STATUS AND INITIAL GOAL



Frequency Missing = 20 (no response)

[1] After the data were collected, it was discovered that several of the colleges included non-credit enrolled students in their initial mailing. It was not possible to determine after the fact which of the non-degree seeking respondents with no credit were those who had failed all of their classes, and which were those who had never enrolled for credit. Fifty-two of the 196 non-degree respondents had no credits and a GPA of 0.

Among the nonpersisters whose stated primary goal was earning transfer credit, whether or not they succeeded in transferring was a good discriminator of perceived goal achievement - with 83% correctly classified. Transfer was not significantly related to perceived goal achievement in the other goal groups. Among graduates, transfer was also a good discriminator of perceived goal achievement for students whose goal was earning transfer credit, with 73% correctly identified. Again, this factor was not significant in determining perceived success for other goal groups.

A question on the survey which went out to graduates asked whether respondents felt their CTC education had helped them to get a job, a raise, and/or a promotion. Their responses were taken as a measure of whether graduates felt their careers were helped by their CTC experience. Comparing this to their perceptions of goal achievement showed that 77% of the graduates whose goals were career related could be identified as goal achievers or non-goal achievers based on whether they felt their education had helped their careers. The two factors (goal achievement and career improvement) corresponded in only 38% of the graduates whose goals were not career oriented. No similar measure was available for the nonpersisters.

Perceptions of the College

The final section of both the non-persister and graduate surveys consisted of 68 statements about the college, with which respondents were asked to agree or disagree. The responses are ranked on the following scale:

-2 = strongly disagree
-1 = disagree
1 = agree
2 = strongly agree

The results of the two surveys show that nonpersisters and graduates have similar views of their college experiences overall; items rated at the top and bottom of the two lists were similar.

FIGURE 3
ITEMS WITH HIGHEST AND LOWEST AGREEMENT SCORES

	RANK OUT OF 68	
	GRADUATES	NONPERSISTERS
MOST FACULTY SHOWED AN UNDERSTANDING AND DEPTH OF THE SUBJECT MATTER THEY WERE TEACHING.	1	3
ACADEMIC RECORDS I RECEIVED WERE ACCURATE.	2	1
MY INITIAL CONTACT WITH THE COLLEGE WAS A POSITIVE EXPERIENCE.	3	2
I BENEFITTED FROM THE PROGRAMS AND SERVICES OF THE STUDENT HEALTH OFFICE.	66	65
JOB PLACEMENT SERVICES WERE EFFECTIVE.	67	68
ENOUGH PARKING IS GENERALLY PROVIDED FOR STUDENTS.	68	64
I FELT THAT I WAS AN INTEGRAL PART OF THE STUDENT BODY.	63	67
ADEQUATE COUNSELING EXISTED TO HELP ME DEAL WITH PERSONAL PROBLEMS.	57	68

A General Linear Modeling procedure[2] was used to determine the significance of the effects of graduation and goal achievement on the response variability. The responses from the two surveys were pooled, with two variables being created based on whether the respondents were graduates or nonpersisters, and whether they had indicated their goals were achieved or not achieved (those who did not respond to the question on goal achievement were excluded).

The results show that once the effects of perceived goal achievement are accounted for, few items show a significant ($p < .01$) main effect for graduation status. Goal achievement had a significant effect on the variance of the mean ratings on 11 items - including 4 of the 5 items pertaining to interactions with the faculty, and 4 of 5 items on counseling services; while grads and nonpersisters differed on only 4 items. Interactions between graduate status and goal achievement were also significant on several items.

FIGURE 4
MEAN SCORES FOR ITEMS ON WHICH GRADUATES/NON GRADUATES
OR GOAL ACHIEVERS/NON GOAL ACHIEVERS DIFFERED SIGNIFICANTLY•

	GRADUATED		WAS GOAL ACH		
	YES	NO	YES	NO	
THERE WAS AN ADEQUATE NUMBER OF COURSES TO SELECT FROM TO FULFILL MY MAJOR.	0.87	0.64	0.83	0.72	a
REQUIRED COURSES WERE AVAILABLE AT CONVENIENT TIMES FOR ME.	0.75	0.40	0.75	0.31	ab
IN MOST OF MY MAJOR COURSES, GRADES REFLECTED EFFORT AND QUALITY OF PERFORMANCE.	1.21	1.09	1.22	1.03	b
MOST FACULTY SHOWED AN UNDERSTANDING AND DEPTH OF THE SUBJECT MATTER THEY WERE TEACHING.	1.31	1.27	1.34	1.18	b
MOST FACULTY MEMBERS ASSISTED ME IN MEETING MY EDUCATIONAL GOALS.	1.16	0.97	1.19	0.81	b
MOST FACULTY MEMBERS SHOWED CONCERN FOR ME AS AN INDIVIDUAL	1.10	0.90	1.14	0.72	b
MOST FACULTY WERE AVAILABLE TO ME OUTSIDE OF CLASS.	1.14	0.86	1.15	0.74	b
ADEQUATE COUNSELING EXISTED TO HELP ME EXPLORE CAREER OPPORTUNITES FOR MY FUTURE.	0.68	0.47	0.73	0.34	b
ADEQUATE COUNSELING EXISTED TO HELP ME DEAL WITH PERSONAL PROBLEMS.	0.66	0.28	0.71	0.14	b
COURSE & PROGRAM ADVICE I RECEIVED HELPED ME CLARIFY AND ACHIEVE MY EDUCATIONAL GOALS.	0.81	0.50	0.87	0.30	b
JOB PLACEMENT SERVICES WERE EFFECTIVE.	0.08	0.06	0.26	-0.36	b
ADEQUATE STAFFING TO COMPLETE REGISTRATION WAS AVAILABLE.	0.88	1.05	0.95	0.92	a
MOST COLLEGE ADMINISTRATORS AND STAFF WERE SENSITIVE TO MY SPECIAL NEEDS AND CONCERNS.	1.09	0.98	1.11	0.92	b
ENOUGH PARKING IS GENERALLY PROVIDED FOR STUDENTS.	0.01	0.47	0.16	0.24	a

• Items which had significant interactions are excluded; only main effects are evaluated.
a Means differ for grads and non grads ($p < .01$).
b Means differ for goal and non goal achievers ($p < .01$).

[2] GLM procedure in SAS version 6.06 for the VAX/VMS environment.

Discussion

As has been found in previous studies, among the nonpersisters and graduates in this study, the relationship between traditional academic measures of success and perceived goal achievement was found to be limited. This has been attributed to the idea that students do not realistically evaluate their education, but these Community-Technical College students did seem to make some objective evaluations. They looked to external measures, such as career improvement and transfer, rather than grades and diplomas to evaluate their educational experience. Among the students surveyed, a degree alone did not guarantee that goals were achieved; non-academic measures of success had higher correlations to perceptions of achievement. External measures of achievement, while being difficult to verify among alumni, do provide reasonable objective measures of success.

Self-reported goal achievement was also found to be related to how the former students felt about specific college experiences. In particular, students' views about their interactions with faculty and counseling services were more negative if they also reported that they did not achieve their goals. Degree completion was not related to these factors. From these data, one can only speculate as to the causal relationship between the views expressed concerning faculty and counseling and goal achievement. Extending the example of Lenning et al., who advised looking for retention variables in successful intervention programs, it would be useful to evaluate the effects on goal achievement of programs designed to improve student-faculty interactions and counseling services.

Some of the gaps in this study which must be dealt with in future questionnaires are the inclusion of a question concerning perceived career improvement on the nonpersisters survey, the development of a non-academic measure of success for those students who said their primary goal was self-enrichment rather than career or academic advancement, and the differentiation and possible exclusion of non-credit enrolled students. In addition, asking students about their goals and outcomes on the same survey undoubtedly resulted in somewhat biased responses; however, using only goals recorded at the time of enrollment as a baseline would imply that if students' goals change they are invalidated. Future plans include surveying incoming students concerning their goals to compare to later responses to surveys on goals and satisfaction with outcomes.

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Development of an Information System for Tracking Transfer Students

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In the 1960s the public system of two-year community colleges grew at a very rapid rate. Some of the institutions were junior colleges, governed by public systems while others were newly created. In the 1970s most public two-year colleges fell under the governance of state boards for higher education. As junior and community colleges of the 1960s, their primary function was general education and transfer. During the 1970s and 1980s the number and proportion of students in vocational programs increased.

There is a growing concern nationwide about the transfer function of public two-year colleges in relation to persistence and success of transfer students and to the transferability of many credits earned at two-year institutions.

Three years ago an agreement was reached between Dr. Kenneth Elterich, Director of Information Services of Connecticut Community Colleges, and Jennifer Brown, Director of Institutional Research at Connecticut State University (CSU), to share data on transfer students once CSU's new student information system was operational. In 1989-90 the Connecticut Department of Higher Education convened an Advisory Committee to prepare guidelines concerning transfer and articulation between the Community-Technical Colleges (CTC), Connecticut State University and the University of Connecticut. Recommendations included curricular changes, articulation agreements, institutional assessment of transfer retention, transfer student support, information for students, and feedback from four-year institutions to two-year institutions concerning transfer students.

Review of Literature

According to Kintzer, a high percentage of two-year college students transferred to four-year institutions in the 1960's. Data from some states indicate the percentage of students who transfer has declined from the 1960s to the 1980s [Grubb]. In addition, there is evidence that the percentage of credits earned at two-year colleges and accepted at the four-year colleges has declined.

Research offers little hard data on the numbers of students who transfer. According to The Chronicle of Higher Education, "By most national estimates, roughly one-third of the students enrolled in two-year colleges plan to continue their education. But not more than one-quarter of them transfer to four-year institutions, and fewer than that earn baccalaureate degrees..... The American Association of Community and Junior Colleges, ... estimates that about 29 percent of all two-year college students continue

their education at four-year institutions. That figure, which is based on a government study called 'High School and Beyond,' is higher than those proposed by many researchers, whose estimates range from 15 to 25 percent."

Grubb reports research on transfer in California which focuses on high school graduates of a specific year and follows them through their academic careers. This longitudinal model is very time-consuming and resource-intensive, while omitting data on non-traditional students.

General Transfer Issues

When examining transfer, there are four areas upon which concern is focused. These include defining transfer students, calculating rate of transfer, understanding reason for decline of transfer, and measuring success of transfer.

A basic problem in producing hard data about transfer is that of definitions. Does one qualify to be considered a transfer by graduating from the two-year institution and then going to a four-year college? Or by earning a specified number of credits at the two-year institution before enrolling in the four-year college? What about students who attend the two-year and four-year colleges simultaneously for reasons of convenience and/or economy?

Another problem is quantifying the rate of transfer. Should the rate be based on all two-year enrollees? This will include students who enrolled for the purpose of personal enrichment or holders of degrees who enroll for career/skills retraining or updating. How soon after leaving the 2-year institution must the student enroll at a 4-year institution?

There are many factors to explain the decline in transfer rates of students from two-year colleges. In the past thirty years two-year colleges have changed considerably. The average age of two-year college students has increased as the percentage of "non-traditional" students has risen. The number of vocational programs has increased. Two-year colleges are enrolling increased numbers of academically underprepared students. Many students come from environments where education has been neither a tradition nor a high priority.

The mission of the Connecticut Community-Technical Colleges includes access. Admission is open and fees are low. The system enrolls more that 60% of the minority students in CT public higher education. Programs are tailored to the needs of students. Remedial and developmental education programs are available. Also enrolled are a large number of "experimenters"; students who have no expectation of transferring.

The significant increase in the number of occupationally-oriented programs has occurred as a result of other societal changes of the late 20th century. The number of single-parent households (usually headed by women), the decline of well-paid jobs requiring few skills, the increase in jobs requiring some technical training, and the trend

to two-income house-holds are all environmental factors which have lead to high enrollments in occupational programs. Some of these are certificate programs with a limited general education component.

According to many sources, it is the student who tentatively enrolls in higher education, selects an occupational program with little or no concern for transfer, experiences success and then decides to transfer who suffers loss of credit in transfer.

There are many ways to measure the success of a transfer, some more easily quantified than others. Persistence and graduation from the 4-year college, GPA change, and credits accepted are readily measured, while personal fulfillment and individual development are not.

There are two measures of credit acceptance to be considered. One is the number of credits offered from the two-year college which are accepted by the four-year college. The other is the number of those credits which are actually applicable to the baccalaureate degree, as determined by the total number of credits required to earn the degree compared to those earned at a 4-year college plus those offered from a 2-year college.

For the student who attends a public two-year college and transfers to a public four-year college, required repetition of credits and/or courses is often seen as expensive, as it represents additional financial aid, public funding and tuition expenses plus lost wages.

Present Knowledge

The Community-Technical Colleges presently have very limited knowledge about the students who transfer. Graduates are surveyed, and from these surveys (52% return rate) we know that about 50% transfer. Of these, 42% transfer to one of the five public universities in Connecticut. While individual campuses may have some knowledge of the number of students who transfer before graduating, no system-wide research has been done. There is a perception among some CTC personnel that students from some CTC programs have a particularly difficult time.

Measuring the amount of credit transferred from a community or technical college to the four-year institution is more problematic. A previous survey effort determined that many students did not know how many credits they had offered in transfer, had credits accepted on a contingency basis, enrolled at the four-year college without credit evaluation, and had no idea what they needed to graduate. The major conclusions were that evaluation of transfer should be done using existing student data and we should attempt to evaluate these issues after the student graduates from the four-year college.

Goals of Project

The project described, using data available on the student records systems at the various colleges, has been designed to provide the ability for Connecticut's Community-Technical Colleges to gain a better understanding of the rate, experience and success of transfer of CTC alumni.

Specifically, this project is designed to provide answers to the following questions:

- the rate of transfer of students from Connecticut's Community and Technical Colleges.
- the four-year majors to which students transfer, and from which two-year programs.
- the level of transfer activity previous to graduation.
- how GPA relates to age, majors, programs, credits transferred and persistence.
- how credits offered for transfer by CTC students compare with credits accepted by four-year colleges.
- how the credits accepted relate to programs and majors.
- total credits students are earning before graduation from the four-year colleges.
- how total credits are related to major at four-year college.
- how long (i.e., years) it takes for transfers to complete their education.
- how transfer prior to CTC graduation compares to transfer after CTC graduation.
- persistence of CTC transfers at four-year colleges.
- how age, sex and/or ethnic group affect any of the above.

Methodology

This system is planned to be totally computer-to-computer. As the system matures and the volume of data increases, there should be very little work requiring significant personnel resources, while providing enhanced ability to analyze transfer process. The function of this system is limited to measuring transfer activity and is <u>not</u> designed to operationally support transfer.

Community and Technical Colleges have provided data to the Central Office Research Unit about students who enrolled during the past six years and will continue to update these data annually. These data include demographic, enrollment and program information, GPA and credits offered in transfer (non-remedial, C- or higher), first term attended, last term attended and graduation date (if applicable). Data collected from the four-year colleges include SSN, credits accepted, credits earned at 4-year, first term attended, last term attended, GPA, and four-year major. A program was written which merges the two sets of data, based on social security number,

allowing linking of individual students. Only the most recent data on each student is saved. The credits offered of transfers who have attended more than one CTC are summed to include all credits available for transfer.

It might be expected that students who enroll in a program at a two-year college and then transfer into a program of same or similar content at a four-year college would be most successful in transferring credits. Due to the multitude of CTC programs and four-year majors, a scheme was developed which groups programs and majors into major and minor groupings, based on studies of curriculum and Classification of Instructional Program codes. This allows coding the program-to-major transfer as "related", "somewhat related", or "unrelated".

Progress to Date

Presently the data are complete for 15 of 17 Community-Technical Colleges. Data from 3 of the 4 colleges of the Connecticut State University system are complete for 2 terms, while we have received less data from the University of Connecticut and the fourth unit of CSU. Charter Oak College (Connecticut's External Degree-Granting Institution) and the independent colleges and universities of Connecticut have been invited to participate and have responded positively.

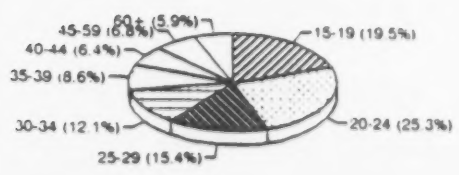
The transfers referenced below represent a subgroup of CTC to four-year public colleges/universities transfers and it should be understood that these very preliminary results are based on available data and is not a sample and does not attempt to represent a cohort.

Results to Date

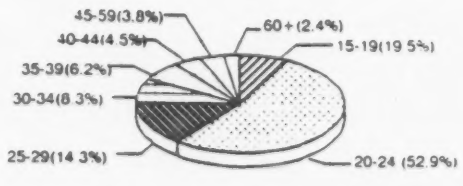
The data as reported represent 3330 identified CTC to CSU/UConn transfer students, as compared with a total CTC enrollment of about 44,000. When compared with the total enrollment of the CTC colleges, the two groups are somewhat similar in some respects, while dissimilar in others. Fifty-eight percent (58%) of transfers were women while women represent 62% of CTC total enrollment. Minority (Black and Hispanic) students comprise 8.1% of the transfers and 14.1% of the total CTC enrollment.

The following tables illustrate that while 25% of CTC enrollees are in the 20-24 age group, 53% of transfers entered the four-year institutions are in that 20-24 age group.

Age Breakdown of
CTC Enrollees

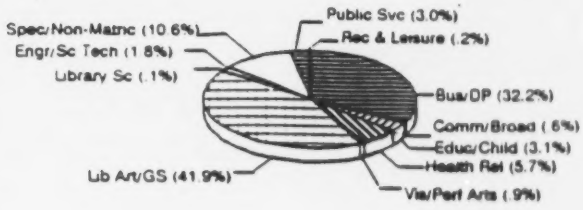


Age Breakdown of
CTC Transfers

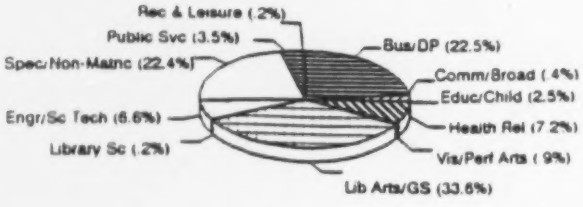


The majority of CTC students are enrolled in Business or Liberal Arts or are non-matriculated. These three categories of students represented the majority of transfers in somewhat varied proportions.

CTC Programs
of Transfers to CSU/UConn



CTC Enrollment
by Program - Fall 1990



The table which follows illustrates the flow of students from specific two-year colleges to the four-year institutions. It is not surprising that geographic considerations play a major role in those decisions.

Community-Technical College	Central CSU	Eastern CSU	Southern CSU	Western CSU
Asnuntuck CC	56	17	0	1
Greater Hartford CC	178	11	5	1
Greater New Haven STC	24	0	25	1
Hartford STC	56	1	2	0
Housatonic CC	15	3	89	8
Manchester CC	431	259	31	6
Mattatuck CC	218	9	111	74
Middlesex CC	195	23	91	3
Mohegan CC	44	185	21	2
Norwalk CC	33	11	70	20
Northwestern CC	90	6	9	5
Quinebaug CC	8	85	3	0
South Central CC	21	9	227	2
Thames Valley STC	8	38	2	0
Tunxis CC	332	7	17	3
Waterbury STC	6	0	2	0
TOTAL	1715	664	705	126

The following table shows the number of CTC transfers according to their CTC program and whether their four-year majors are the same, related or unrelated. Note that except for Business, Data Processing and Liberal Arts students, a majority of students transferred into majors which are unrelated to their CTC programs.

	Same		Related		Unrelated	
Comm/Tech Program Group	Cnt	Pct	Cnt	Pct	Cnt	Pct
Business/Data Processing	291	28.5	311	30.4	420	41.1
Communication/Broadcasting	1	5.0	8	40.0	11	55.0
Health-Related	76	41.3	7	3.8	101	54.9
Education/Child Development	49	49.5	9	9.1	41	41.4
Visual/Performing Arts	0	0.0	16	44.4	20	55.6
Industry/Manufacturing	22	36.1	15	24.6	24	39.3
Precision Production/CAD	0	0.0	0	0.0	5	100.0
Architectural/Civil Engr	4	23.5	0	0.0	13	74.5
Electrical/Computer Engr	4	8.5	2	4.3	41	87.2
Science Technology	1	7.1	4	28.6	9	64.3
Public Service	0	0.0	14	14.4	83	85.6
Library Science	0	0.0	0	0.0	2	100.0
Recreation/Leisure	2	50.0	1	25.0	1	25.0
Liberal Arts/General Studies	8	0.6	205	15.4	1121	84.0
Unclassified/Non-Degree	107	28.0	0	0.0	275	72.0
TOTAL	565	17.0	592	17.8	2167	65.2

Many educators and policy-makers envision a student completing a number of credits and/or a program/degree at a two-year college and then transferring to a four-year school. Ideally the student's educational goals are articulated before entry into the two-year college and stay constant throughout the educational career. This would make for much easier measurement of transfer. Our data supports the anecdotal evidence that this vision is not accurate; students move from institution to institution and frequently change majors.

When comparing the credits offered in transfer from the CTC with the transfer credits according to the four-year data, it was learned that a majority of identified transfer students offered less CTC credits than they had received at the four-year colleges. This indicates that in their academic careers they had attended some other colleges in addition to CTC before transferring to the four-year college. While data about these students are useful in some analyses, more than 50% of the records of identified transfer students must be excluded from analysis of credit transfer.

Credits Offered from CTC	Transfer Credits at Four-Year Colleges						
	1-15	16-30	31-45	46-60	61-75	76-90	91+
1 - 15	7.8%	2.6%	1.9%	2.1%	2.6%	1.6%	1.1%
16 - 30	2.2%	8.0%	1.9%	3.0%	3.3%	1.3%	0.8%
31 - 45	0.2%	2.4%	5.0%	2.6%	2.9%	1.0%	0.6%
46 - 60	0.1%	0.2%	3.0%	13.0%	5.3%	1.0%	0.7%
61 - 75	0.0%	0.0%	0.4%	5.4%	9.7%	1.6%	0.6%
76 - 90	0.0%	0.0%	0.1%	0.3%	1.5%	1.7%	0.7%

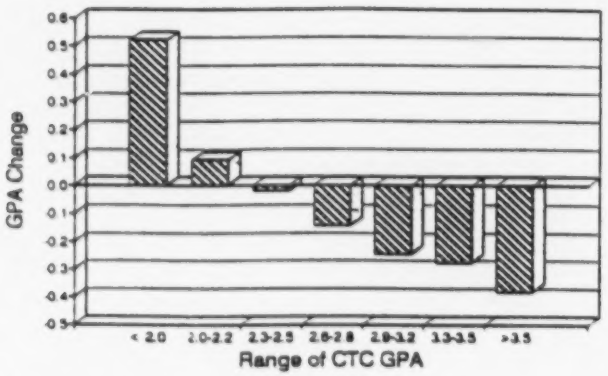
As referenced above, graduate surveys provide information about the number of students who transfer following graduation. These data provide us a measure of the numbers of students who transfer credits to the CSU system without completing a degree at CTC. (Note that students with less than 60 credits are students who earned a certificate, earned less than 60 credits with grades of C- or higher and/or used transfer credits to qualify for the CTC degree.). Sixty-three (63%) did not complete degrees at the Community-Technical College.

CTC Credits Offered and Graduate Status	
1 - 6 Credits	7.00%
7 - 23 Credits	23.09%
24 - 36 Credits	14.79%
36 - 60 Credits, Not Graduated	13.62%
36 - 60 Credits, Graduated	15.58%
60 + Credits, Not Graduated	4.88%
60 + Credits, Graduated	21.03%

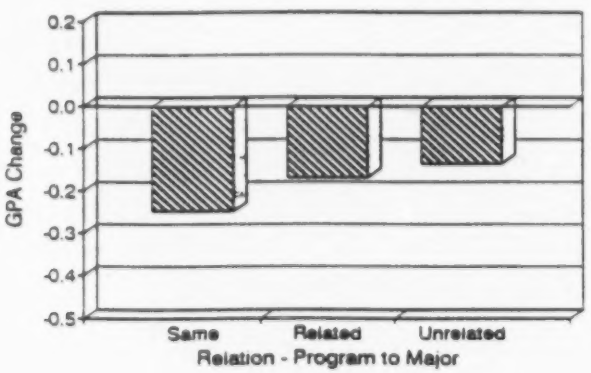
The CTC GPA and the GPA at the four-year institutions were compared for each transfer for whom these data were available (students in their first term at the four-year institution had no GPA as yet). Students' GPAs declined an average of -.17, with a standard deviation of .62. Using analysis of variance procedures, the following were examined to determine influence upon GPA change; sex, ethnic group, program group at 4-year institution, CTC GPA, age at transfer, CTC College, CSU/UConn unit, CTC credits offered in transfer, CTC program and the "relatedness" between the two-year program and

four-year major. Only "relatedness", CTC GPA and age at transfer were significant contributors to change in GPA.

The following graph illustrates the inverse relationship between CTC GPA and GPA change. Students with the lowest CTC GPAs experienced the greatest increases (.52) at the 4-year institutions, while those who entered with the highest CTC GPAs experienced the greatest decline (.38).



Students who selected a major the same as their CTC programs experienced a mean GPA decline of .25, while those who selected programs somewhat related or unrelated declined .17 and .13, respectively. Further study is necessary to determine if this is related to specific programs and/or majors.



The GPA change as related to age at transfer is interesting. Students who transferred while age 19 or less experienced a significantly greater decline in GPA than did all other groups, except those over 60 years of age. Are they affected by "transfer shock" to a greater degree than their older cohorts?

Obstacles/Problems Encountered

As referenced above, there is no one definition of a transfer student. One independent college indicated that nearly all of its graduates carried some transfer credits, yet that institution does not consider them transfers unless they have transferred 30 or more credits.

In order to easily participate in this project, the transfer institution must be using a student information system which readily allows identification of students with transfer credits as well as the colleges from which those credits are transferred.

Some CTC students enroll with the continuing education office at the four-year college. It may be some time before the transfer "paperwork" is complete, and until that time, the student will not be recognized as a transfer student.

Many students register for courses at CTC after enrolling at a four-year college. This usually happens for reasons of cost and/or convenience and is consistent with the mission of the CTC. Using terms of enrollment, these students can be excluded from transfer analysis.

Future Directions

The first priorities are acquiring more complete data from the colleges for which data are incomplete and receiving data from the independent colleges.

A method of identifying students who had enrolled in remedial or developmental courses should be included in order to compare the transfer success of those students with that of the general population.

Calculation of a transfer rate is dependent upon developing an agreed upon method for that calculation, including a definition of "expected to transfer".

Once the system has had time to "mature", i.e., collect data about all transfer students over a few years, we will be able to examine persistence of those students at the receiving colleges and analyze the number of credits required to graduate, as compared with "native students" and as related to credits offered from the 2-year colleges and earned at the 4-year colleges. It should also allow us to evaluate the effectiveness of the many articulation agreements in place and to determine problem areas, i.e., programs from which students are experiencing transfer problems and for which curricular requirements should be examined.

Uses of Information

The uses for the information from this project are many, including a method to quantify the results of articulation agreements and to determine those which need attention. The mission of CTCs ranges from developmental education to preparation for transfer to selective colleges. The system will allow the CTCs to evaluate their success in meeting that mission. Four-year colleges who are concerned about enrollments have an opportunity to determine the program and demographic characteristics of CTC students, particularly transfers, to select appropriate recruiting and student support strategies and develop programs which provide a logical progression. It provides an opportunity for four-year colleges to compare how CTC transfers are succeeding at their institutions compared with those who transfer to all in-state four-year institutions.

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Why Do Some Students Choose to Work While Others Do Not?

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Introduction

Ezra Cornell founded Cornell University with a commitment to provide students with opportunities for work as well as for study. To realize the founder's vision, the Office of Financial Aid and Student Employment has been making great strides to encourage students to work during the regular school year. College Work Study (CWS) is, for example, the first funding source that is used to meet students' financial needs. The Cornell Tradition Fellowship, another aid program, emphasizes the significance of work and reduces a working student's loan up to $2,500 a year. Students' academic-year employment has been particularly important in the University's ability to assist families to cope with the increase in higher educational costs and decrease in state/federal funding. A recent study has found that working full-time U.S. students increased 29% in 1959 to 43% in 1986 (Stern and Nakata, 1991).

Yet, a significant number of students refrain from academic year employment. In Cornell's case, 45% of the undergraduate students worked during the 1990-91 academic year, while more than a half of the population did not work. The shortage of the student labor force has caused great difficulties in many areas of the University such as dining halls, libraries, and other administration offices; those units have been forced to employ non-student workers, who are usually paid more than students. There has been a strong need, therefore, to identify students who do and do not work, why they choose (or do not choose) to work, and how they perceive the value of work during the regular school year.

Literature Review and Research Questions

Previous studies indicated that working on campus up to 25 hours per week is not necessarily detrimental to a student's academic achievement and is even positively correlated with school performance when the job is closely related to academic work (Ehrenberg and Sherman, 1987; Pappalardo, 1986). Further more, students with employment experience can earn more money in the first few years after graduation (Ehrenberg and Sherman, 1987; San, 1986).

However, to our knowledge, no previous study has attempted to investigate what factors may significantly contribute to a student's decision to work while in college. In particular, we would like to know what factors may successfully distinguish working from non-working students among those who are receiving financial aid. The purpose of this study is an initial attempt to answer this research question.

Development of Survey Questionnaire and Data Collection

The questionnaire was developed and pre-tested by the joint efforts of student interns and the staff of Financial Aid and Student Employment Office.

2,098 undergraduate students were selected as a sample, using a stratified random sampling techniques with a 98% confidence interval. The sample population was stratified by the following variables: ethnic status (Asian, under-represented minorities and white), class year (freshmen and upperclassmen) and college. A questionnaire and a personalized cover letter were sent to the students, during the first week of April, 1990. Ten days later, a postcard reminder was sent. Two weeks after the initial mailing, the questionnaire was remailed to the 48% of the sample who had not returned the questionnaire to us at that time. The final response rate was 63.6%. The study examined eight questions selected from the survey and six variables concerning the respondents' demographic data.

Analysis Results

Bivariate Analysis

Out of 1,332 survey respondents, 532 were financial aid recipients (40%) and 800 non-financial aid students (60%). The present study focused on the financial aid respondents. Out of these 532 financial aid recipients, 327 (61.5%) were employed whereas 205 (38.5%) were not employed during the semester. Each question was cross-tabulated by their employment status (employed vs. non-employed) and the chi-square test was run to see whether the employment status is significantly related to the response pattern.

We have found that student employment decisions are significantly influenced by employment experience while in high school. Table 1 indicates that 62% of currently employed students had work experience in high school, while 57% of non-working students had no previous employment experience. In other words, high school employment experience significantly influences students' choices to work after enrolling in college.

Table 1

	Employed in High School	Not Employed in High School	Total
Employed	202 (62%)	125 (38%)	327
Not Employed	88 (43%)	117 (57%)	205
Total	290 (55%)	242 (45%)	532

$X^2 = 18.1$ $p<.001$

The employment decision is also significantly related to a student's positive attitudes and perceptions toward work while in college. The survey has revealed that employed students are more likely to perceive that academic-year work enhances the educational experience (Table 2), provides job market advantages (Table 3), helps develop career plans (Table 4), and that academic-year employment does not negatively affect either their academic performance (Table 4) or their social life (Table 5).

Table 2

Do you agree that AY (academic year) work enhances the educational experience?

	Strongly Agree	Agree	No Opinion	Dis-Agree	Strongly Disagree	Total
Employed	52 (16%)	155 (47%)	32 (10%)	68 (21%)	20 (6%)	327
Not Employed	8 (4%)	66 (32%)	25 (12%)	73 (36%)	33 (16%)	205
Total	60 (11%)	221 (41%)	57 (11%)	141 (27%)	53 (10%)	532

$X^2 = 46.8$ $p<.001$

Table 3

Do you agree that AY work provides job market advantages?

	Strongly Agree	Agree	No Opinion	Dis-Agree	Strongly Disagree	Total
Employed	54 (17%)	150 (46%)	38 (12%)	64 (19%)	21 (6%)	327
Not Employed	11 (5%)	78 (38%)	24 (12%)	60 (29%)	32 (16%)	205
Total	65 (12%)	228 (43%)	62 (12%)	124 (23%)	53 (10%)	532

$X^2 = 30.4$ $p<.001$

Table 4

Do you agree that AY work helps develop realistic career plans?

	Strongly Agree	Agree	No Opinion	Dis-Agree	Strongly Disagree	Total
Employed	22 (7%)	100 (31%)	69 (21%)	106 (32%)	30 (9%)	327
Not Employed	4 (2%)	56 (27%)	42 (21%)	74 (36%)	29 (14%)	205
Total	26 (5%)	156 (29%)	111(21%)	180 (34%)	59 (11%)	532

$X^2 = 9.7$ $p<.05$

Table 5

Do you agree that AY work negatively affects academic performance?

	Strongly Agree	Agree	No Opinion	Dis-Agree	Strongly Disagree	Total
Employed	43 (13%)	95 (29%)	24 (7%)	140 (43%)	25 (8%)	327
Not Employed	39 (19%)	87 (42%)	26 (13%)	47 (23%)	6 (3%)	205
Total	82 (15%)	182 (34%)	50 (9%)	187 (35%)	31 (7%)	532

$X^2 = 32.2$ $p<.001$

Table 6

Do you agree that AY work negatively affects social life?

	Strongly Agree	Agree	No Opinion	Dis-Agree	Strongly Disagree	Total
Employed	38 (12%)	79 (24%)	20 (6%)	143 (44%)	47 (14%)	327
Not Employed	30 (15%)	81 (40%)	28 (14%)	58 (28%)	8 (4%)	205
Total	68 (13%)	160 (30%)	48 (9%)	201 (38%)	55 (10%)	532

$X^2 = 40.0$ $p<.001$

Whether a student is Asian, an engineering or architecture major, or freshman also affects the decision to work. Compared to non-Asian students, Asian students are more likely to refrain from academic-year employment (Table 7). Students majoring in engineering or architecture are less likely to work, probably because of their heavy academic workloads (Table 8). We also found that freshmen tend to stay away from academic-year employment (Table 9). Freshmen may choose not to work until they become accustomed to the new environment in college.

Table 7

	Non-Asian	Asian	Total
Employed	284 (87%)	43 (13%)	327
Not Employed	153 (75%)	52 (25%)	205
Total	437 (82%)	95 (18%)	532

X^2 = 12.8 p<.001

Table 8

	Non-Engineer	Engineer	Total
Employed	272 (83%)	55 (17%)	327
Not Employed	139 (68%)	66 (32%)	205
Total	411 (77%)	121 (23%)	532

X^2 = 17 p<.001

Table 9

	Upper-Classmen	Freshmen	Total
Employed	251 (77%)	76 (23%)	327
Not Employed	123 (60%)	82 (40%)	205
Total	374 (70%)	158 (30%)	532

X^2 = 18.1 p<.001

Student's employment status is not strongly associated with parental income, GPA, or minority status other than Asian. Although we have analyzed only the financial aid recipients' data, these findings are somewhat surprising because we would generally assume that lower parental income, disadvantageous minority background or lower GPA may significantly influence a student's employment decision during the academic year.

Multivariate Analysis

One serious problem associated with bivariate analysis is that it does not take inter-relationships among the variables into consideration. For example, majoring in Engineering is usually highly correlated with several demographic factors such as male gender or Asian ethnic background. If a student decides not to work during the semester, this decision may be made because he is Asian, because he is male, because he has a heavy workload in the College of Engineering, or because of the combination of all these factors.

In order to consider such inter-relationships among variables, multivariate analysis, so-called discriminant analysis, was run. Discriminant analysis finds the best linear combination of the variables which separates the employed from the non-employed group.

The results are mostly in line with the bivariate findings stated above, but it has revealed more interesting insights. Among all the variables examined, students' value on work, which was measured by to what extent a student can agree that academic-year work adds to one's educational experience, most significantly divides the employed and non-employed groups. This is followed by whether a student is a freshman, had a regular work experience while in high school, majors in architecture or engineering, or has an Asian ethnic background. Again, income, under-represented minority status, GPA, gender, and one's major (except engineering and architecture) have insignificant impact on students' employment decisions.

Summary and Discussion

This study has investigated what factors may significantly affect students' decisions regarding academic-year employment. A stratified sample survey was conducted in April, 1990. Out of 1,332 respondents, 532 received financial aid and 800 did not. 532 students eligible for College Work Study Program were grouped into the employed (N=327) and the non-employed (N=205). Eighteen variables were examined in the study.

The study has found that the decision to work is significantly affected by (1) a student's perception of the overall educational value of academic-year employment; (2) a student's employment experience while in high school; (3) whether the student is a freshman or not; (4) whether s/he majors in engineering or architecture; and (5) whether s/he is Asian. GPA, parental income, or under-represented minority background, which are commonly assumed to be major factors affecting a student's decision to work, have not turned out to be significant.

The findings reinforce what many of us involved in student employment programs have believed for some time; there is much more to a student's work experience than simply financial benefit. Academic-year employment is perceived by working students as a vital component of their overall educational experience. Unfortunately, in these times of aid budget cuts and increasing concern over educational costs, the short-term financial benefit often overshadows the overall educational, personal and institutional benefits that may be derived from student employment programs.

The results of the study also imply that students' attitudes toward student employment may be cultivated long before their entrance into college. This is indicated by the finding that the students with previous work experience in high school tend to continue to work in college. Furthermore, such attitudes may have been developed

uniquely under the influence of families with different ethnic values. We may speculate that Asian families, for example, might have different attitudes toward academic-year employment in comparison with other families.

The study also has shown that student employment programs must not be administered uniformly toward the entire student population solely based on their financial benefits. Employment programs targeted towards freshmen must be sensitive to the special needs of freshmen until they become familiar with their new college environment. Students undertaking demanding curricula (e.g., engineering) must be advised differently about academic-year employment problems.

Why do some students choose to work while others do not? How exactly does a student's work experience contribute toward the student's educational, personal or career experiences? This study has opened up quite an intriguing discussion.

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APPENDIX I

(1) Q1 "Are you currently employed?" 1. Yes 2. No

(2) Q16 "What are your parents approximate pre-tax income?

0....Financially independent
1....Below $15,000
2....$15,000-29,999
3....$30,000-44,999
4....$45,000-59,999
5....$60,000-69,999
6....$70,000-99,999
7....$100,000-124,999
8....$125,000 and UP

"Don't Know" answer was coded as the midpoint value, namely 4.

(3) Q17 "Did you hold a regular paying job during the academic years while in high school?"
1. Yes 2. No

(4) Q19a "In general, paid working during a semester significantly contributes to one's overall educational experience at Cornell."

(5) Q19b "Paid work during a semester provides a student with skills which are an advantage in the post-graduation job market."

(6) Q19c "Job commitments during a semester negatively affect academic performance."

(7) Q19d "Job commitments during a semester negatively affect one's social life and/or extra-curricular activities."

(8) Q19g "Work experience during a semester helps students develop realistic career plans."

Q19a, Q19b, Q19c, Q19d, and Q19g
1. strongly agree 2. agree 3. disagree
4. strongly disagree
"No Opinion" was coded as 2.5.

(9) Asian
1. Asian 0. Non-Asian

(10) Minority
1. Under-represented Minorities (Hispanic, Blacks and American Indians)
0. Non-Under-represented Minorities

(11)	Freshmen	1. Freshmen	0. Non-freshmen
(12)	AG	1. AG student	0. Non-Ag student
(13)	AR	1. AR student	0. Non-AR student
(14)	EN	1. EN student	0. Non-EN student
(15)	HO	1. HO student	0. Non-HO student
(16)	HE	1. HE student	0. Non-HE student
(17)	IL	1. IL student	0. Non-IL student
(18)	Gender	1. Male	0. Female
(19)	GPA		

Estimating Numbers of Students With Disabilities, Their Needs, and Ratings of Facilities and Services

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Introduction

This paper reports on a survey that was developed, with assistance from Dr. Candace McKinniss, Department of Economics and Management, to assist the ECSU Committee on the Strategic Plan for Persons in Connecticut with Disabilities (see Appendix A for membership). The purpose of the survey was to (1) learn more about our students with disabilities, (2) estimate their number (3) determine how well we meet their needs (4) compare their evaluation of services and people on the Eastern campus with that of students without disabilities.

I. Survey Design

Sample size and method. A sample of 368 students was selected from the 4475 students enrolled in Fall 1990. We sampled four groups independently: full-time undergraduates, part-time undergraduates, full-time graduate students, and part-time graduate students. Beginning with a randomly selected case, a survey was sent to every 13th student. Students were offered confidentiality, but not anonymity on the survey.

Students responding by a certain date were given an opportunity to win a $50 gift certificate donated by the campus bookstore, Barnes and Noble. A second mailing was sent to non-respondents. A total of 133 surveys were received, giving a return rate of 36.1 percent. A copy of the survey instrument protocol is provided in Appendix B.

A separate mailing was sent in December 1990 to 99 students who had previously contacted Shirley Doiron, Counselor, Special Services for Disabled Students. This group of surveys is not included in this analysis. They will be analyzed in a separate report to be prepared in the near future.

II. Sample Validity

At 36.1 percent, the response rate was lower than we would have liked. It is therefore particularly important to know how closely the respondents match the student body as a whole. Table 1 compares the respondents (SAMPLE) with the total student body (POPULATION) on a number of demographic variables--status, sex, race and age.

Table 1.
Comparison of Respondents and Total Student Body

VARIABLE	SAMPLE	POPULATION
Status		
Pct Full Time	67.9%	61.4%
Pct Part Time	32.1%	38.6%
Sex		
Female	76.7%	61.5%
Male	23.3%	38.5%
Race/Ethnicity		
White*	97.4%	90.8%
Black	0.9%	4.6%
Hispanic	0.9%	2.9%
Native American	0.9%	0.7%
* includes non-resident aliens		
Age		
Under 25	60.9%	61.4%
25-34	20.0%	18.7%
35-44	13.0%	13.8%
45+	6.1%	6.1%
NOTE: may not add to 100% due to rounding		

Discussion

Status. Full-time students responded more readily than their part-time counterparts. As a result, 67.9 percent of the respondents were full-time students compared to 61.4 percent of the student body.

Sex. The response rate of women was higher than than for men. Over 75 percent of respondents were female, compared to 61.5 percent of the student body.

Ethnicity. Black and Hispanic students had very low response rates. Fewer than 1 percent of the surveys were returned by Black or Hispanic students, although they comprise 4.6 and 2.9 percent, respectively, of all our students.

Age. Response rates by age closely paralleled the age distribution of the student body. This indicates, for example, that we have neither an under- nor over-representation of older students.

Lower response rates by males and minorities are fairly common problems with surveys nationally. Results from this survey cannot be generalized to reflect minority students. Any future survey should attempt to oversample those populations. We can, however, feel comfortable that there is little bias in responses based upon age, although responses are overinfluenced by females and full-time students.

III. Frequency Distribution

A. Estimating the Number of Students with Disabilities

As Table 2 shows, 9.8 percent of those responding indicated that they had some type of disability. If we were to apply that proportion to the student body as a whole (4475), we would expect about 438 of our students to have some kind of disability. Using the statistical method called the standard error of the percent, we can estimate with 95 percent confidence that the actual number of students with a disability is between 231 and 669 students. There is only a 5 percent chance that the actual number of students with disabilities is outside of this range.

Table 2.
Percent of Students by Disability

Permanent	9.0%
Temporary	0.8%
None	90.2%

Another way to estimate the number of students with disabilities is to use information from the survey in a somewhat different way. Only 38.5 percent of those indicating a disability stated that they knew of the existence of the Office of Special Services for Disabled Students. That suggests that nearly two out of three students with disabilities do not know that there is an office here at Eastern dedicated to their needs. If students don't know that Special Services exists, they cannot contact that office for assistance. Thus, the number seeking help must be considerably smaller than the actual number of students with disabilities.

In fact, only 99 students have contacted Shirley Doiron, Counselor for Special Services. If only one out of three students with disabilities know of that office, then there could well be an additional 198 students who would seek assistance if they knew about Special Services. If that is the case, then there are probably no fewer than 297 students with disabilities on the campus. The actual number is probably higher, since not all of students with disabilities would contact Special Services. We can therefore feel fairly confident that the actual number of students with disabilities at Eastern is well above 300, and the statistical estimate of 438 is probably conservative.

B. Distribution by Specific Disability

Table 3 provides information on the types of disabilities reported by students responding to the survey. Auditory problems were the most prevalent single

Table 3.
Students by Type of Disability

DISABILITY	NUMBER	PERCENT
Mobility	3	2.3%
Visual	3	2.3%
Auditory	5	3.9%
Verbal	2	1.6%
Learning	1	0.8%
Other	7	5.3%

disability listed. Nearly 4 percent of students who returned the survey indicated that they had difficulty hearing. This was followed by mobility and visual problems, each of which were cited by 2.3 percent of the respondents. Although learning disabilities are sometimes considered quite widespread, they were reported by only 1.6 percent of the students. Disabilities involving speech were cited least frequently (only one student), representing 0.8% of the total number of respondents. Finally, 5.3 percent of the students indicated "other" types of disabilities. These included artificial joints, asthma, and organ transplants. Although they are indicative of the types of disabilities found among our students, the number of cases is too small to permit these proportions to be extrapolated to the full student body.

IV. Evaluation of Campus Facilities

We asked students who have a disability to answer two additional sets of questions evaluating the accessibility of ECSU facilities. Table 4 shows how they evaluated each of 13 buildings on campus. It is particularly interesting to note not only that most found the buildings easy to access, but also that none indicated that the buildings were totally inaccessible.

Table 4.
Question 4a. Ease of Access to Facilities

	easy				inaccessible
BUILDING	1	2	3	4	5
Burr	5		3		
Goddard	7		1		
Hurley	7		1		
Knight	4	1	1		
Library	6	2	1		
Media Center	7	1	1		
Planetarium	4		1		
Portables	5	1	1	1	
Shafer	8	1	2		
Sports Center	3		1		
Student Center	9		2		
Winthrop	5	2	1		
Residence Halls	5		2		

Over one-third indicated that Burr Hall was somewhat difficult to access. Access problems were cited by about a quarter of those using residence halls, the Sports Center and the Portables. One fifth had difficulties with the Planetarium, while just under one-fifth described problems in accessing the remaining eight facilities. Fewer than 20 percent of the students with disabilities who answered these questions indicated a moderate or greater difficulty with access.

Looked at another way, Goddard and Hurley had the fewest barriers (only 12.5% had difficulty), and Winthrop and the Portables caused the greatest difficulty (37.5 percent found them less than easy to access). Interpretation of these data are limited by the lack of comparative evaluation by students without disabilities.

Table 5 presents the responses of students with disabilities to the ease of access for parking, elevators, lavatories, water coolers and telephones in selected

Table 5
Question 4b. Ease of Access to Facilities

	Parking		Elevators		Lavatories		Water		Phones	
BUILDING	No	Pct	No	Pct	No	Pct	No	Pct	No	Pct
Burr	3	60.0%	1	100.0%	1	33.3%	1	50.0%	1	33.3%
Goddard	4	80.0%	1	100.0%	2	66.7%	1	50.0%	1	50.0%
Hurley	3	75.0%			1	50.0%				
Knight	2	100.0%								
Library	4	100.0%	1	100.0%	1	33.3%				
Media Center	4	80.0%	1	100.0%	1	14.3%				
Planetarium	3	100.0%								
Portables	4	80.0%	1	100.0%	1	100.0%	1	100.0%		
Shafer	4	80.0%			1	33.3%			1	100.0%
Sports Center	2	100.0%								
Student Center	4	66.7%	1	100.0%	2	33.3%				
Winthrop	4	100.0%	1	100.0%	2	66.7%			1	50.0%

buildings. The first column shows the number of students with disabilities who indicated that a particular feature was difficult to use. The second column shows the percent of those responding to the question who found it difficult to use. It is clear that parking is a problem. Between 60 and 100 percent of students with disabilities indicated that parking for individual buildings was difficult to use. Unfortunately, we did not ask students without disabilities to answer this set of questions, so we cannot tell whether this is more of a problem for students with disabilities, although the frequency of articles in the Lantern (the student newspaper) suggest that parking is a perennial problem.

Following parking as a problem was access to lavatories in the various buildings, cited by one or two students responding to the questionnaire. The third most common access problem was elevators, which were a problem for one student each in seven buildings, including one (Portables) which has no elevator. Phones (4 citations) and water coolers (3 responses) appear to be less of a problem.

V. Evaluation of ECSU Services

Students were asked to indicate how well ten ECSU services met their needs. Table 6 shows the results separately for students with and without disabilities on a scale of 1 to 5, where 1 is "well" and 5 is "poorly". For students with disabilities, the most negative rating was given to Health Services, which were just above midway,

slightly on the side of "poorly". This was followed by scores halfway between "well" and "poorly" ("adequately") for Career Services, Personal Counseling and the Learning Center. Rated most highly were Sports/Recreation.

Table 6.
Question 5a. How Well Do Services Meet Your Needs?

SERVICE	Mean w/disab	no disab	1-Tail Prob
Academic Advising	2.63	2.39	0.37
Career Services	3.00	2.44	0.41
Counseling (Personal)	3.00	2.35	0.40
Health Services	3.25	2.78	0.29
Learning Center	3.00	2.43	n/a
Library	2.14	2.11	0.47
Computer Labs	2.40	2.07	0.27
Science Labs	2.00	2.38	0.29
Sports/Recreation	1.75	1.89	0.39
Student Activities	2.14	2.05	0.42

Scale: 1=well 5=poorly

The pattern for students without disabilities was similar, although scores were generally lower (more positive). The only exceptions were for the Science Labs and Sports/Recreation, where they were more critical than their counterparts with disabilities.

We used a T-test to compare the mean scores of students with disabilities and those without disabilities to evaluate whether the differences between the scores are statistically significant. Using a one-tailed test (which assumes that those with disabilities would score the services more harshly) the differences were not statistically significant for any of the ten services. That means that the observed differences in scores are within the realm of chance. In other words, there is no statistical difference in how students with or without disabilities rated these services.

VI. Evaluation of ECSU Staff and Students

Table 7 examines how comfortable responding students were with ECSU personnel and peers. Separate averages are given for students with and without disabilities. The higher the score, the more comfortable students were in dealing with that group of people. In all cases students ratings of comfort in dealing with University people was relatively high, falling between "comfortable" and "helpful but distant". Students with disabilities scored their Peers most highly, followed by Faculty, Academic Advisor, and Residence Hall staff. They felt somewhat less comfortable with Admissions staff, found Learning Center and Administrative staff helpful, but distant.

Table 7.
Question 5b. How Comfortable Are You with ECSU People?

UNIVERSITY PEOPLE	Mean w/disab	Mean no disab	1-Tail Prob
Admissions Staff	2.00	1.77	0.31
Peers (other students)	1.17	1.42	0.03
Faculty (in general)	1.46	1.41	0.41
Academic Advisor	1.67	1.82	0.38
Learning Center Staff	2.67	2.00	0.27
Residence Hall Staff	1.80	1.80	0.50
Administrative Staff	2.88	1.91	0.07

Scale: 1=comfortable 5=difficult/hostile

When comparing the ratings of students without disabilities to those with disabilities there was no clear pattern. In four cases those with disabilities were more comfortable with a certain group (Admissions, Faculty, Learning Center, Administrative staff), in one case their ratings were identical (Residence Hall staff), and in two cases they were less comfortable than students without disabilities (Peers, Academic Advisor). In only one case, however, is the difference in scores by students with and without disabilities statistically significant at the .05 level -- Peers (probability of differences occurring by chance = .03). It is interesting that students with disabilities were significantly more comfortable with their peers than students without disabilities. While the differences in ratings for Administrative staff were not statistically significant at the .05 level, they were not far off (.07). In this case, however, students with disabilities were less comfortable with the staff than were students without disabilities.

VII. Conclusions

1. Estimating number of students with disabilities.

   * We estimate that there are between 231 and 669 ECSU students with some kind of disability. If a single number had to be used, we would estimate 438 students.

   * The single most common disability is auditory, followed by mobility and visual impairments.

2. Access to facilities for students with disabilities.

   * No student with a disability rated access to facilities as totally inaccessible; most rated access as "easy". Only one student indicated that one building (Portables) was relatively inaccessible.

* Over one-third of students with disabilities indicated that Burr Hall was somewhat difficult to access.

* About one-quarter of students with disabilities indicated that the residence halls, Sports Center and Portables were a problem.

* Goddard and Hurley had the fewest barriers.

* Access to parking for specific buildings is cited most frequently as a problem, followed by lavatories and elevators.

3. Student evaluation of university services.

* Both students with and without disabilities found Health Services least adequate to meet their needs, and Sports/Recreation to most closely meet their needs.

* None of the differences in ratings of university services by students with and without disabilities were statistically significant.

4. Student evaluation of university people.

* In all cases student ratings of comfort in dealing with University people (including other students) was relatively high, regardless of disability status.

* Students with disabilities were most comfortable with peers, finding Learning Center and Administrative staff helpful, but distant.

* Students without disabilities were most comfortable with faculty, followed by peers. Even those they rated as being least comfortable to deal with, the Learning Center Staff, they placed midway between comfortable and helpful but distant.

* The difference in rating by students with and without disabilities was statistically significant at the .03 level for only one group -- their peers. Students with disabilities were significantly more comfortable with their peers than students without disabilities.

VIII. Recommendations

1. Increase awareness of the availability of services for students with disabilities.

2. Increase awareness among university staff and students of the proportion of students with disabilities.

3. Obtain further information on access difficulties for specific facilities.

4. In future surveys, extend questions on parking and other ancillary facilities to all respondents.

5. If this survey is to be repeated, modify protocol to increase response rate, especially for minority students.

6. Consider providing a formal definition of "disability" in future survey, either as part of the instrument or the cover letter.

APPENDIX A

Survey Protocol

Attached are copies of the original and follow-up letter as well as the survey instrument. We enclosed a postage-paid envelope for return of the survey.

Mailing labels were provided with the assistance of Clara Thompson, in alphabetical order, for students registered in Fall 1990. Three separate sets of labels were produced for full-time undergraduates, part-time undergraduates, and graduate students, based upon their local address.

Initially we used the interoffice mail to reach students living in the residence halls. The low response rate of this group compared to full-time students living off campus led us to send their second mailing using first-class mail.

Should we do this type of survey again in the future, we should incorporate a post-card follow-up seven to ten days after the initial mailing. We may also want to do a second follow-up letter. Alternatively, we could increase the sample size.

APPENDIX B.

UNIVERSITY ACCESS SURVEY

1. How long (for how many semesters) have you been attending ECSU?

- ☐ 0-1 (this is the first semester)
- ☐ 2-4
- ☐ over 4

What class are you in (officially)?

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate Student
- ☐ Other (please explain) _____

Are you:

- ☐ a full time student?
- ☐ a part-time student?

2. Do you presently have a physical disability either permanent or temporary?

☐ permanent ☐ temporary ☐ no (if none, please skip to Section 5.)

	Inhibits activity minimally				Severly inhibits unassisted activity
Mobility Impairment	1	2	3	4	5
Visual Impairment	1	2	3	4	5
Hearing Impairment	1	2	3	4	5
Learning Disability	1	2	3	4	5
Speech Disability	1	2	3	4	5
Other (explain _____)	1	2	3	4	5

3. Are you aware that there is an office on campus designated for providing services to students facing access barriers to educational opportunities?

- ☐ yes
- ☐ no

If yes, have you used this facility?

- ☐ No; have not registered/called there
- ☐ Have registered, but have not used services
- ☐ Yes; presently use services

4a. Please review the following list of campus facilities and circle the ease of access you, personally, have experienced in using each.

	Have not Used	Easy Access				Inaccessible
Burr Hall	0	1	2	3	4	5
Goddard Hall	0	1	2	3	4	5
Hurley Hall	0	1	2	3	4	5
Knight House	0	1	2	3	4	5
Library	0	1	2	3	4	5
Media Center	0	1	2	3	4	5
Planetarium	0	1	2	3	4	5
Portable Classrooms	0	1	2	3	4	5
Shafer Hall	0	1	2	3	4	5
Sports Center	0	1	2	3	4	5
Student Center	0	1	2	3	4	5
Winthrop Hall	0	1	2	3	4	5
Residence Hall (please specify _____)	0	1	2	3	4	5

4b. More specifically, if you have a physical disability, how easy are these facilities to use? Below is a list of campus buildings. Please circle the "+" for the building features which you have used with ease, a "NA" for features which you have not used, and a "–" for features which you found difficult to use.

	Parking			Elevators			Lavatories			Water Coolers			Telephones		
Burr Hall	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Goddard Hall	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Hurley Hall	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Knight House	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Library	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Media Center	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Planetarium	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Portable Classrooms	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Shafer Hall	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Sports Center	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Student Center	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–
Winthrop Hall	+	NA	–	+	NA	–	+	NA	–	+	NA	–	+	NA	–

5a. Please describe how well these university **services** meet your needs.

	Have not Used	Well		Adequately		Poorly
Academic Advising	0.	1	2	3	4	5
Career Services	0	1	2	3	4	5
Counselling (personal)	0	1	2	3	4	5
Health Services	0	1	2	3	4	5
Learning Center	0	1	2	3	4	5
Library	0	1	2	3	4	5
Computer Labs	0	1	2	3	4	5
Science Labs	0	1	2	3	4	5
Sports/Recreation	0	1	2	3	4	5
Student Activities	0	1	2	3	4	5

5b. Please describe your comfort level in dealing with the following university people.

	Have not Met	Comfortable		Helpful but Distant		Difficult/Hostile
Admissions Staff	0	1	2	3	4	5
Peers (other students)	0	1	2	3	4	5
Faculty(in general)	0	1	2	3	4	5
Academic Advisor	0	1	2	3	4	5
Learning Center Staff	0	1	2	3	4	5
Residence Hall Staff	0	1	2	3	4	5
Administrative Staff	0	1	2	3	4	5

6. What is your major? _____

Have you taken (check all that apply):

- ☐ day classes
- ☐ evening classes
- ☐ summer session classes
- ☐ intersession classes

7. Do you live:

- ☐ on campus
- ☐ off campus

8. At this point in your life, which do you consider your major role to be?

- ☐ student
- ☐ other (e.g., spouse, worker, parent, community member, etc.)

Thank you for your time and assistance. If you have any comments or suggestions, please feel welcome to offer them below or call Dr. Steinberg at x5307.

- ☐ I would be willing to be interviewed
- ☐ I would like a copy of the survey results

EASTERN CONNECTICUT STATE UNIVERSITY

A campus of the Connecticut State University

Dear Student,

Eastern Connecticut State University would like to know how well we are meeting our students' needs for access to facilities and programs. You are one of about 350 students being asked to help us determine what proportion of our students have some type of disability, whether we are meeting your needs, and where we can improve access to educational opportunities. In order that the results will truly represent our student body, it is important that each questionnaire be completed and returned, whether or not you have a mobility, perceptual, learning or other disability. This questionnaire should take you less than five minutes to complete.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off of the mailing list when your questionnaire is returned. Your name will not be placed on the questionnaire and information about individual students will not be distributed to other offices (e.g., financial aid).

The results of this research will be used in the development and evaluation of our Access Plan for Persons with Disabilities. You may receive a summary of results by writing "copy of results requested" on the tear-off sheet below. When done, please return your completed questionnaire along with the tear off sheet at the bottom of this page to the **Office of Planning and Research, Administration Building, ECSU**. We have enclosed a postage paid envelope for your convenience.

As a thank you for your help, we will enter your tear off sheet in a drawing; one respondent will win a $50 Gift Certificate provided by the campus bookstore. To qualify for the drawing, you must mail your completed questionnaire by October 1. **Thank you for your assistance.**

---------- please cut along dotted line ----------

Name: _____

Local Address: _____

Phone: _____-_____

Would you be willing to be interviewed? ☐ yes ☐ no

Just to satisfy our curiosity, how likely would you have been to respond if there had not been a drawing?

Would not have answered	May have				Definitely would have, anyway
0	1	2	3	4	5

EASTERN CONNECTICUT STATE UNIVERSITY
A campus of the Connecticut State University

December 1990

Dear Student,

Eastern Connecticut State University needs to know how well we are meeting our students' needs for access to facilities and programs. You are one of a small sample of students being asked to help us determine what proportion of our students have some type of disability, whether we are meeting your needs, and where we can improve access to educational opportunities. In order that the results will truly represent our student body, it is important that each questionnaire be completed and returned, whether or not you have a mobility, perceptual, learning, or other disability.

Your response will be made anonymously. There is no way that we can determine who has replied, much less which student returned which survey. We hope to get 100 percent return on the questionnaires as the information will enable us to improve programs, services and facilities. If you have a disability, or know someone else who does, then you realize the importance of having the necessary accommodations available when you need them. With your 100% effort to provide us with this information, we will strive to provide you with 100% accessibility.

The results of this research will be used in the development and evaluation of our Plan for Individuals with Disabilities in Higher Education. You may receive a summary of results by filling in the enclosed pink form and mailing it in a separate envelope to the address indicated. The questionnaire should take less than five minutes to complete. When done, please return it to me using the enclosed postage paid envelope.

If you have any questions, please call me at 456-5448. Thank you for your help.

Sincerely,

Shirley Doiron

Shirley Doiron
Counselor
Student Affairs

83 Windham Street, Willimantic, Connecticut 06226-2295 203/456-5400
"An Equal Opportunity Employer"

Last Chance

EASTERN CONNECTICUT STATE [illegible] SITY

A campus of the Connecticut State University

Dear Student,

Eastern Connecticut State University would like to know how well we are meeting our students' needs for access to facilities and programs. You are one of about 350 students being asked to help us determine what proportion of our students have some type of disability, whether we are meeting your needs, and where we can improve access to educational opportunities. In order that the results will truly represent our student body, it is important that each questionnaire be completed and returned, whether or not you have a mobility, perceptual, learning or other disability. This questionnaire should take you less than five minutes to complete.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off of the mailing list when your questionnaire is returned. Your name will not be placed on the questionnaire and information about individual students will not be distributed to other offices (e.g., financial aid).

The results of this research will be used in the development and evaluation of our Access Plan for Persons with Disabilities. You may receive a summary of results by writing "copy of results requested" on the tear-off sheet below. When done, please return your completed questionnaire along with the tear off sheet at the bottom of this page to the **Office of Planning and Research, Administration Building, ECSU**. We have enclosed a postage paid envelope for your convenience.

As a thank you for your help, we will enter your tear off sheet in a drawing; one respondent will win a $50 Gift Certificate provided by the campus bookstore. To qualify for the drawing, you must mail your completed questionnaire by October 1. **Thank you for your assistance.**

DEADLINE EXTENDED to Oct 20

We want to hear from you. If you have already returned your questionnaire, thank you. If you need another copy, call 456-5306.

---------- please cut along dotted line ----------

Name: _____

Local Address: _____

Phone: _____-_____

Would you be willing to be interviewed? ☐ yes ☐ no

Just to satisfy our curiosity, how likely would you have been to respond if there had not been a drawing?

Would not have answered		May have			Definitely would have, anyway
0	1	2	3	4	5

83 Windham Street, Willimantic, Connecticut 06226-2295 203/456-5400

"An Equal Opportunity Employer"

A Simple Computer Model for Prioritizing and Scheduling School Visits

David R. Weir, Jr.
Associate Director of Admissions
Franklin Pierce College

Abstract

The objective of this workshop is to demonstrate a computer model and associated files that are used by Franklin Pierce College to prioritize and schedule school visits. The target audience is admissions and data processing staff.

Introduction

At Franklin Pierce College, we have developed a technique for prioritizing and scheduling school visits which is designed to maximize recruitment yield and minimize office overhead. The development of this model reflects a continuing belief in the importance of the school visit in the recruitment marketing mix (See the author's paper, "School Visits - Still An Effective Marketing Tool?," also presented at the NEAIR 1991 Annual Conference) The technique involves an index and two data bases. The latter are an "itinerary" file and a "high school" file.

The index is a measure of the potential of the high school for sending students to a college. As will be discussed in more detail below, the index can be calculated and used in a variety of ways to prioritize school visits. At Franklin Pierce, the index is calculated as a moving, four-year weighted sum of the number of graduates who go to four-year colleges from that high school, the number of applications to Franklin Pierce from that school and the number of students matriculating at Franklin Pierce from that school (see Figure 1 below).

In the calculation of this index for a high school, there is an attempt to mimic the admissions funnel - from inquiries to applications to matriculants. Each of the factors in the index is weighted by the inverse of its ratio to the inquiry pool for the college as a whole. Thus, for example, if, for the college as a whole, there were 10,000 inquiries and 5,000 applications the previous year, the weighting factor for applicants in the calculation of the high school index would be two. In scheduling school visits for Franklin Pierce, the highest priority is then given to high index schools.

The "high school" file has fields for high school visit, application and matriculation data. There is also a field for the index. As described in more detail below, a comprehensive "index order" printout of this file provides a guide for setting high school visit priorities. This printout is supplemented by "zip order" printouts by state, which are used for completing recruiting days with adjacent high index schools.

The "itinerary" file has fields for the address, telephone number and time and date of the visit, as well as for high school data (see Figure 2 below). This file is used for itinerary printouts, as well as for collecting data from high schools that is used to update the "high school" file.

At Franklin Pierce, we use the POISE (People Oriented System for Education) software package and a Digital VAX 4000/300 minicomputer to manage these files. Many other standard software and hardware combinations would work equally well or better.

The High School Index

The high school index is the core of this selection model. It is an attempt to measure the potential of a high school for matriculating students at a college. Numbers of graduates going to four-year colleges, as well as applications and matriculants from a particular high school to Franklin Pierce are weighted so as to approximate the yields in the overall admissions funnel (see Figure 1, below). In the Franklin Pierce model, a four-year period is used on the theory that feedback to the high school continues from freshman to senior year.

Figure 1 - High School Index Model

Index = (a + bx1 + cx2)/100, where:

a = (number of seniors to four-year colleges, past four years)

x1 = (number of applications, past four years)

x2 = (number of matriculants, past four years)

b = inverse of ratio of applications to inquiry pool

c = inverse of ratio of matriculants to inquiry pool

At Franklin Pierce, this model is used to reinforce feeder school interest in our college. Each year, consistent with office and college program commitments, as many high index schools as possible are visited. However, one could as easily emphasize low index schools. Furthermore, the model could be refined to reflect additional factors, such as deposited students, in the calculation of the index.

The "High School" File

The "High School" file includes 77 fields, as listed in Figure 1, below:

Figure 2 - The "High School" File Layout

1. H.S. code
2. H.S. name
3. Street Address
4. City
5. State
6. Zip code/Country
7. H.S. counselor
8. Telephone
9. School type (e.g. public, private, 2-yr college)
10. Enrollment
11. Mean Verbal SAT
12. Mean Math SAT
13. Senior class size
14. Percent of H.S. senior class to four-year colleges
15. Last data update (year)

16. Last visit (fall or spring)
17. Last visit (year)
18. College representative (initials)
19. Rating (1 (high) to 2 (low))
20. Spring Visits (yes or no)
21. Fall visits (yes or no)

22-34. Senior class size, by year
35-47. Applications, by year
48-60. Matriculants, by year
61-73. School visits, by year

74. Number of students to four-year colleges, last four years
75. Number of applications, last four years, last four years
76. Number of matriculants, last four years, last four years
77. Index

The "high school" file was originally set up from a computer tape obtained from the College Board organization. It covers our main constituent states, which are concentrated in the northeast. It is updated every year, in regard to high school data from a "request-for-information" form sent to high schools and from high school profile data entered by college representatives in the "itinerary" file (see Figure 5 below). The most recent school visit information (date, representative, visit rating) is also moved

from the "itinerary" file. Finally, the application information is moved from the admissions file and matriculant information from the registrar file.

The "high school" file provides two key printouts of high schools which guide the high school selection process: (1) a comprehensive "index order" listing and (2) "zip code-order" listings by state (see Figures 3 and 4 below). The representative first identifies the high index schools in his territory from the "index-order" listing (see Figure 3 below) and attempts to schedule visits with these schools first. Questions of priority with regard to similar index schools may be resolved by consulting the most recent visit information (which we regard as more important) and the visit ratings (which we regard as less important). Thus, if both schools with an index of 75 in Figure 3 were in the representative's territory, he would select school "Y" first, because it had been visited less recently, even though it had a lower visit rating. Then, using the "zip-code order" listing (see Figure 4 below), he would fill out his day with visits to schools having as high indices as possible. Having selected school "Y" on an index basis, he would then select school "B" before school "A" from the "zip-order" listing because of its higher index.

Figure 3 - "Index-Order" Listing (Abbreviated Form)

Index	CEEB Code	School Name	Address	Zip	H.S. Phone	Last Contact	Rating Visit
75	----	X	-------	--- -----	-------	9/90	1
75	----	Y	-------	--------	-------	9/89	3
74	----	Z	-------	--------	-------	9/90	1

Figure 4 - "Zip-Order School Listing (Abbreviated Form)

Zip Code	Index	CEEB Code	School Name	Address	Phone	H.S. Contact	Last Visit	Rating
06897	75	----	Y	-------	-----	-------	8/89	3
06901	4	----	A	-------	-----	-------	9/90	1
06902	23	----	B	-------	-----	-------	9/90	2

The "Itinerary" File

The itinerary file includes 22 fields, as listed in Figure 5.

Figure 5 - "Itinerary" File Layout

1. Name of event
2. CEEB H.S. code (if school visit or mini-fair)
3. Event type (e.g. school visit, college night)
4. Street address
5. City
6. State
7. Zip Code
8. Telephone
9. Month/day of event (e.g. May 6th = 0506)
10. Year of event (e.g. 91)
11. Date of event (overlay of month/day and year fields)
12. Day of week (e.g. MON)
13. Start time (24 hour)
14. Finish time (24 hour)
15. College Representative (initials)
16. Number of students seen
17. Number of H.S. Counselors seen
18. H.S. Counselor/contact person
19. Rating of event (1(high) to 5 (low))
20. Total H.S. enrollment
21. Senior class size
22. Percent of senior class going to four-year colleges

Once a representative has scheduled recruiting events, their location and timing are entered into the itinerary file, using fields 1-15. This done, the representative can then print out and distribute his itinerary for an appropriate time period (see Figure 6 below). The office manager can also print out a comprehensive schedule for all representatives to serve as a daily locator.

Figure 6 - Individual Itinerary Example (Abbreviated Form)

L. JOHNSON - FALL 1991 ITINERARY UPDATE

Date	Start Time	Event	Type	City	Telephone
102991	0845	Norwich Academy	COLDAY	Norwich	203 887-2505
	1300	E. Lyme H.S.	SCHVIS	E. Lyme	203 739-4486
	1900	Notre Dame H.S.	COLNIT	W. Haven	203 933-1673
	2300	Ramada Inn	HOTEL	Meriden	203 238-2380
103091	0830	Hamden H.S.	SCHVIS	Hamden	203 248-9311
	1030	Coginchaug H.S.	SCHVIS	Durham	203 349-8524
	1200	Xavier H.S.	SCHVIS	Midltwn	203 346-1368
	1330	Middletown H.S.	SCHVIS	Midltwn	203 344-3022
	1900	Glastonbury H.S.	COLNIT	Glasbry	203 633-5231
	2300	Ramada Inn	HOTEL	Meriden	203 238-2380

As events are completed, the representative enters reports on them, using fields 16-22. At the end of the fall and spring recruiting seasons, the high School" file is updated with data collected from school visits and mini-fairs in fields 8-10, 15 and 19-22.

Conclusions

The simple computer model used to prioritize and schedule school visits at Franklin Pierce College has had the clear advantage of rationalizing and expediting this process. Furthermore, although it is difficult to measure the causality, the use of this model has been associated with an almost 40% increase in enrollment during the five-year period, 1986-90.

At Franklin Pierce, the model has been used to target "feeder" high schools. However, it could also be used to target schools which do not send students to the college. In addition, the index which drives the use of the model could be refined to include additional factors which indicate recruiting potential.

Status, Role, Experience, and Credentials as Factors Influencing Salaries of Professional Academic Librarians

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in completion of this project is gratefully acknowledged.

Abstract

Existing national and regional studies of librarian salaries usually focus on title, functional role, or years of professional experience. Rarely are questions of academic credentials or status considered. This paper summarizes a 1991 study of salaries at 27 academic libraries. Salary differences were analyzed by function, gender, faculty status, rank, tenure, professional experience, and degrees. The main findings of the study were that higher librarian salaries were associated with employment in larger, more complex institutions, administrative work roles, advanced rank, tenure, and completion of a doctoral degree. Most of the factors commonly reported in national studies of librarian salaries - functional work role, type of position, and years of service - were not particularly strong predictors of librarian salaries at academic institutions. A secondary finding was that faculty librarians earned significantly less than academic faculty at the same rank - especially when a correction was made for the difference in terms of appointments. Gender differences in salary between men and women librarians were evident. Only one important difference was found between men and women to help explain the higher average salaries of men - women were less likely to hold a doctoral degree. Recommendations offered for benchmarking library salaries were to present comparisons for similar types of institutions, to include information on faculty attributes and credentialing, and to follow the policies of one's institution in using librarian or academic faculty salaries as points of reference for comparison.

Introduction

Professional librarians often hold faculty status at academic institutions, yet differ from traditional faculty in important ways. Instructional roles for librarians do not usually take place in a classroom setting or involve "socialization" in addition to the formal transmission of information. Expectations for research, scholarship, or other creative activity vary more for librarians than for traditional academic faculty. Criteria for tenure often differ for librarian versus academic faculty. The day-to-day work environment of the librarian with faculty status is likely to be more structured in terms of time and duties than that of an academic faculty member. Most librarians work on a

12 month rather than a 9 month contract. To further complicate the meaning of faculty status with respect to librarians, in any given library, some individuals performing professional librarian roles will hold faculty status, while others will not.

The faculty within two institutions of the University System of New Hampshire, the University of New Hampshire and Keene State College, have organized collective bargaining units for negotiation of contracts. Librarians with faculty status at both institutions are part of these bargaining units. Models for establishing salaries for other faculty have relied on factors such as discipline market position via comparator institutions, length of service, and academic rank.

Inclusion of the librarians in the collective bargaining units with other faculty has raised several issues: 1) Is there an equivalent of "discipline" for librarians?; 2) What is the proper compensation for librarians with faculty status and rank?; 3) How should salaries for faculty librarians be benchmarked?; and 4) How should differences in terms of appointment between academic and librarian faculty members be treated?

Development of a strategy or approach to fair treatment of librarians under collective bargaining depends upon a clear understanding of the factors which influence librarian salaries in the larger market. After review of existing resources, a decision was made to collect new information on the salaries of librarians at comparator institutions for both the University of New Hampshire and Keene State College. This decision was consistent with the approach taken to establishing benchmarks for other faculty salaries.

This paper reports the results of a survey of the comparator institutions undertaken in June, 1991. In addition to the comparators, several regional landgrant institutions in New England were surveyed. This was done because recruiting of librarians often occurs on a regional rather than a national basis.

Existing Studies of Librarian Salaries

Salary surveys which focus on or include librarians are conducted annually by the College and University Personnel Association[1], The American Library Association[2], The Association of College and Research Libraries[3], and the Association of Research

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[1] College and University Personnel Association. Administrative Compensation Survey Report. Washington, D.C.: CUPA, 1991.

[2] American Library Association. ALA Survey of Librarian Salaries 1990. Chicago, Illinois: ALA, 1991

[3] American Library Association. Association of College and Research Libraries, New England Chapter.
1989/90 Salary Survey of New ENgland College Libraries. Chicago, Illinois: ALA, 1990.

Libraries[4]. In each of these surveys, basic factors like functional role, gender, geographic location, type of institution, and years of service are used to summarize the data. The ALA survey includes both public and academic libraries. None of the surveys includes either faculty status or rank as analytic variables.

Method

A survey was designed in cooperation with the library directors of the institutions in the University System of New Hampshire for use in collecting information from a standard set of comparator institutions used for the University of New Hampshire and for the State Colleges (Keene State College and Plymouth State College). These comparator institutions had been previously selected on the basis of similarities in institutional classification, enrollment levels, admissions selectivity, research mission, rural/urban location, types of academic programs, and types of degrees offered. All comparators were public sector institutions. There were three formal groups of comparators used for the study: University comparators (12 institutions), Regional University comparators (the six major New England publics), and State College comparators (13 institutions). Four institutions appeared in both the University and Regional University comparator groups. The State College comparators best fit the Carnegie classification of "Comprehensives" and had average Fall 1988 FTE enrollments of just over 3,000 students. The University comparators fell under the categories of Doctoral or Research institutions and averaged over 11,000 FTE enrollments in Fall 1988. The Regional University comparators averaged over 17,000 FTE students in Fall 1988 and were also comprised of Doctoral and Research institutions.

The survey instrument requested information on each professional librarian employed by the institution. "Professional" librarians were defined consistent with American Library Association standards as stated in Policy 54.1, Sections 8 and 9:

Section 8:

"The title 'Librarian' carries with it the connotation of 'professional' in the sense that professional tasks are those which require a special background and education on the basis of which library needs are identified, problems are analyzed, goals are set, and original and creative solutions are formulated for them, integrating theory into practice, and planning, organizing, communicating, and administering successful programs of service to users of the library's materials and services. In defining services to users, the professional person recognizes potential users as well as current ones, and designs services which will reach all who could benefit from them. "

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[4] Association of Research Libraries. ARL Annual Salary Survey. Washington, D.C.: ARL, 1991.

Section 9:

"The title 'Librarian' therefore should be used only to designate positions in libraries which utilize the qualifications and impose the responsibilities suggested above. Positions which are primarily devoted to the routine application of established rules and techniques, however useful and essential to the effective operation of a library's ongoing services, should not carry the word 'Librarian' in the job title."

The information requested in the survey included: Position type (administrator or general), position category (ie, director, associate director, etc.), title, inclusion in a collective bargaining unit, faculty status, faculty rank, tenure status, gender, highest academic degree, length of contract, functional role area, salary on a 12 month basis, and years of service in current or similar position. Additional questions were asked concerning eligibility of faculty librarians for promotion and tenure, criteria for promotion and tenure, differences in salary level or contract year compared to other faculty, and policies related to compensation for summer work.

Survey Response

Almost 90% of the institutions surveyed completed a response (24/27) by June, 1991. All of the Regional institutions, 92% of the State College institutions, and 83% of the University comparators responded. Data were added for the University of New Hampshire, Keene State College, and Plymouth State College to make a total of 27 institutions in the study. The responding institutions were as follow:

State College Comparators	University Comparators	Regional Comparators
Appalachian State U	Miami U of Ohio	U of Connecticut
Bemidji State U	Mississippi State U	U of Maine, Orono
Eastern Connecticut State U	SUNY, Binghamton	U of New Hampshire
Fitchburg State U	U California, Santa Cruz	U Massachusetts, Amherst
Frostburg State U	U of Colorado, Boulder	U of Rhode Island
Keene State College	U of Delaware	U of Vermont
Mary Washington College	U of Maine, Orono	
Plymouth State College	U of New Hampshire	
Shippensburg State U	U of Oregon	
Southern Oregon State Col.	U of Rhode Island	
SUNY, Potsdam	U of Vermont	
University of Montevallo		
U of Tennessee, Martin		
U of Wisconsin, Stevens Pt		

The above institutions provided data on 566 professional librarians. Of these, 140 were from the State College comparators. 329 were from University comparators, and 181 were employed by the Regional comparators. (There were 84 librarians who were employed by institutions which were both University and Regional comparators. Consequently, the overall counts in tables summarizing across type of comparator institution will exceed 566.) The average number of professional librarians was 10 for the State College, 30 for the University, and 30 for the Regional comparators.

Some generalities can be made about the librarians and institutions in the study:

- Over 40% were in administrative roles while just under 60% held staff roles.
- The most frequent staff roles were in reference (27%) and cataloging (15%).
- Roughly two-thirds of all the librarians held faculty status. Over 85% of the faculty librarians held rank and over 95% were eligible for tenure. Roughly half of those eligible had been granted tenure.
- The great majority of librarians at State College comparators held faculty status (90%) and tenure (75%). At University comparators, over 75% had faculty status, but less than 40% held tenure. For the Regional comparators, less than 40% had faculty status and roughly one-third of the faculty librarians held tenure.
- Administrators were more likely to have faculty status, advanced rank, and tenure than staff librarians.
- Over 92% of the professional librarians held a bachelors or masters degree, usually the MLS. Less than 8% held a doctorate. Those at Regional or University comparator institutions were more likely to hold a doctorate than those employed at State College comparators.
- Roughly 85% of the librarians worked on a 12 month contract year basis. Seven percent had multiyear contracts based on a 12 month work schedule. Only 6% worked on a 9 month academic year contract.
- Nearly half of the librarians had 7 or fewer years of experience in their area of work. Just over 20% had 20 or more years of experience.
- Nearly two-thirds of all the professional librarians were women.
- Collective bargaining units were in place at one-third of the responding institutions, representing roughly 16% of the librarians in the study.

Results

Salaries of librarians were thought to be affected by a variety of factors, including type of position, type of functional role, faculty status, faculty rank, tenure status, degree credentials, and years of service. There was also interest in exploring whether or not there were gender differences in salaries or differences between institutions represented by collective bargaining units compared to those which were not.

Work and Functional Roles

Table 1 shows mean salaries for librarians broken down by type of work, type of institution, and functional role. Functional role, or specialty area, of a librarian may be the closest corollary to an academic faculty member's discipline. The main findings were:

- Salaries of librarians varied significantly by type of institution. State College administrators averaged 10% less than administrators at the University and 15% less than those at Regional comparators. Staff librarians at the State Colleges averaged 6% less than Regional but 13% more than University comparator librarians. There was an underlying difference in the length of service of librarians at the comparator institutions which may partially explain the above differences in staff salaries. Regional staff averaged 13.5 years of experience compared to 11.4 years for the State Colleges and 9.0 years for the University staff.(See Table 5.)

- Administrative librarians averaged nearly one and a third times as much salary as general staff. This difference was most pronounced among the University comparator librarians and was not due to differences in length of service. Administrators averaged 10.7 years overall while general staff averaged 10.2 years. As with staff, there were differences among administrators at the different types of institutions. Administrators at the State Colleges had 13.1 years compared to 11.5 years for the Regional and 8.9 years for the University institutions. (See Table 5 .)

- There was only minor differentiation among average salaries of staff librarians in different functional roles at the three types of comparator institutions. Collection development and automation were associated with higher salaries while circulation and acquisitions areas had lower average salaries. There were no clear comparisons to national data on salaries by functional role for staff librarians, however some data were available for department heads. Examination of the results of the national ARL survey for FY91 showed that department heads in automation and special collection areas had higher salaries than those in other areas. Circulation department

Table I
Mean Salaries of Comparator Librarians in FY91 by Type of Work and Functional Role

Type of Work	Functional Role	State College Mean	State College N	University Mean	University N	Regional Mean	Regional N	Overall Mean	Overall N
Administrator	Director	$55,442	14	$80,979	10	$81,471	6	$69,160	30
	Associate Director	$45,920	2	$55,856	8	$60,442	9	$56,982	19
	Assistant Director	$39,406	4	$51,916	20	$49,082	6	$49,681	30
	Branch Head	$39,430	3	$41,071	0	$45,254	16	$42,661	39
	Associate Branch Head	-	-	$43,992	1	-	-	$43,992	1
	Department Head	$37,133	41	$39,746	69	$42,948	38	$39,844	148
	Assistant Department Head	-	-	$44,716	5	$41,731	2	$43,863	7
	All Administrators	$41,662	64	$46,064	133	$48,920	77	$45,838	274
General	Acquisitions	-	-	$28,800	2	$28,000	1	$28,533	3
	Automation	$42,507	4	$35,006	4	$44,478	3	$40,317	11
	Bibliographic Instruction	$34,033	6	$30,760	2	$50,468	1	$35,132	9
	Cataloging	$36,111	12	$32,225	38	$38,179	25	$34,831	75
	Circulation	$33,834	4	$28,500	1	$36,500	1	$33,389	6
	Collection Development	$46,220	2	$44,913	8	$47,449	8	$46,185	18
	Documents	$36,172	3	$28,447	10	$29,574	3	$30,107	16
	Interlibrary Loan	$36,416	4	$35,277	4	$32,850	3	$35,029	11
	Public Services	-	-	$32,353	10	-	-	$32,353	10
	Reference	$35,977	27	$32,062	77	$38,304	45	$34,657	149
	Serials	$28,895	2	$28,233	3	$43,173	2	$32,691	7
	Special Collections	$33,087	5	$28,936	8	$37,504	7	$32,973	20
	Technical Services	$47,375	3	$27,134	5	-	-	$34,724	8
	Other	$33,367	4	$30,677	21	$28,625	4	$30,765	29
	Unknown	-	-	$35,372	3	$59,564	1	$41,420	4
	All General	$36,312	76	$32,100	196	$38,619	104	$34,754	376

heads were compensated at lower average levels than other librarians.[5] So, while differentiation is probably less than seen among academic faculty disciplines, functional role does serve as a predictor of salaries in some areas.

Faculty Status Rank, and Tenure

Table 2 shows average salaries for librarians by type of work, type of comparator, and faculty status while Tables 3 and 4 show similar breakdowns for tenure status and faculty rank. Chief findings were:

- Holding faculty status was not a predictor of higher salaries among librarians. Overall, non-faculty librarians in both administrative and staff roles averaged slightly higher salaries that faculty librarians in similar roles.

- Faculty status, however, serves as a gateway to advanced rank and tenure which were good predictors of higher salaries. Among general staff librarians, those who were tenured averaged 14% higher salaries than non-faculty librarians. Tenure was less important to administrative librarians. Tenured administrators still averaged 1% less salary than non-faculty administrators.

- General staff librarians with tenure earned one and a third times as much in salary as other faculty librarians without tenure.

- Those with tenure had greater length of service on average than those who did not. Administrators with tenure had 13.8 years compared to 7.8 years for the untenured. Tenured staff averaged 17.7 years of service compared to 5.7 years for the untenured.

- Advancement to higher rank was associated with higher salaries for faculty librarians. Administrators with full professor rank earned an average of over $15,000 more than those with associate rank. For staff librarians, the difference was over $11,000.

One observation can be made about the meaning of faculty status, rank, and tenure at the different types of comparator institutions. Those institutions which confer faculty status, advanced rank, and tenure on greater numbers of librarians tend to have fewer salary dollars associated as a rite of passage. Thus, for the State Colleges, where nearly all professional librarians hold faculty status, most of the average salary differences between one rank and another were smaller on a percentage basis than at either the University or Regional comparators. For instance, the average salary of a full professor at the State Colleges was 20% higher than that of an associate professor. The differential at the Universities was 45% and at the Regionals, 39%.

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[5] Association of Research Libraries. Annual Salary Survey 1990. Association of Research Libraries, Washington, D.C., January, 1991.

Table 2
Mean Salaries of Comparator Librarians in FY91 by Type of Work and Faculty Status

Faculty Status	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
Faculty	$40,511	54	$47,415	106	$49,128	32	$45,759	192
Non-faculty	$47,880	10	$40,757	27	$48,772	45	$46,024	82
General Staff								
Faculty	$36,499	71	$33,124	147	$35,440	36	$34,396	254
Non-faculty	$33,653	5	$29,028	49	$40,302	68	$35,501	122
Overall								
Faculty	$38,232	125	$39,112	253	$41,881	68	$39,287	446
Non-faculty	$43,138	15	$33,194	76	$43,675	113	$39,731	204

Table 3
Mean Salaries of Comparator Librarians in FY91 by Type of Work and Faculty Tenure Status

Faculty Tenure Status	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
Tenured	$41,167	44	$47,779	44	$52,258	12	$45,407	100
Untenured	$37,961	10	$46,700	46	$46,483	18	$45,466	74
General Staff								
Tenured	$38,419	48	$41,156	46	$47,278	10	$40,481	104
Untenured	$32,493	23	$29,466	101	$30,886	26	$30,176	150
Overall								
Tenured	$39,734	92	$44,394	90	$49,994	22	$42,896	204
Untenured	$34,150	33	$34,859	147	$37,267	44	$35,227	224

Table 4
Mean Salaries of Comparator Librarians in FY91 by Type of Work and Faculty Rank

Faculty Rank	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
Full Professors	$45,772	9	$61,373	22	$62,450	11	$58,312	42
Associate Professors	$40,181	17	$43,055	38	$45,312	15	$42,841	70
Assistant Professors	$40,856	16	$40,280	26	$34,248	6	$39,718	48
Instructors	$32,197	5	$36,052	8	-	-	$34,569	13
General Staff								
Full Professors	$49,767	7	$48,656	4	$61,364	1	$50,363	12
Associate Professors	$39,182	20	$37,774	27	$44,366	9	$39,337	56
Assistant Professors	$31,903	29	$28,552	57	$32,895	19	$30,263	105
Instructors	$32,645	4	$29,216	40	$24,634	5	$29,029	49
Overall								
Full Professors	$47,520	16	$59,416	26	$62,359	12	$56,545	54
Associate Professors	$39,641	37	$40,862	65	$44,957	24	$41,283	126
Assistant Professors	$35,086	45	$32,226	83	$33,219	25	$33,230	153
Instructors	$32,396	9	$30,356	48	$24,634	5	$30,190	62

Years of Service in Current or Similar Positions

Table 5 shows mean salaries of librarians by type of work, type of comparator, and years of service in current or similar positions. The main findings were:

- Longer terms of service were a slightly better predictor of higher salaries among general staff librarians than among administrators. Salary compression may be a factor or it may be that individuals coming into administrative posts may have had considerable experience in staff roles prior to entering administration. So, while the number of years in administration may be low, the overall experience level (and salary) of a person may be high, accounting for larger salaries. Another possibility is that years of service serves simply to increase one's chances of obtaining statuses that do matter for staff salaries - such as tenure or advanced rank.

- Mean salary differences between librarians based on years of service were minimal. Among administrators, the average increment per year of experience was only $310, while for general staff, the amount was just over $600.

Highest Academic Degree

Table 6 shows the mean salaries of comparator librarians by type of work, type of comparator, and highest academic degree. The main findings were:

- Administrators with a doctorate degree on average earned 10% more than those with a masters degree or less. Administrators with doctorates had 7.8 years of experience compared to 11.5 for those with a masters degrees or less - perhaps suggesting that the doctorate is helpful in achieving administrative positions. For general staff, mean salaries of those with doctorates were 17% higher than those with just a masters level degree. There was little difference in the experience levels of staff holding doctoral (11.2 years) or masters degrees (10.8 years).

- Librarians at State College institutions who held doctorates averaged 30% higher salaries than for those with masters degrees.

Collective Bargaining Status

Table 7 shows the mean salaries of comparator librarians by type of work, type of comparator, and collective bargaining status. The main findings were:

Table 5
Mean Salaries of Comparator Librarians in FY91 by
Type of Work and Years of Service in Current or Similar Position

Faculty Tenure Status	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
0-3 Yrs	$36,670	9	$44,949	31	$34,282	7	$41,775	47
4-7 Yrs	$43,376	11	$40,174	17	$39,006	10	$40,794	38
8-11 Yrs	$36,788	8	$44,804	16	$43,297	9	$42,449	33
12-15 Yrs	$35,226	4	$51,484	8	$49,369	7	$47,282	19
16-19 Yrs	$36,988	2	$57,905	4	$57,555	6	$54,244	12
20-23 Yrs	$45,231	12	$47,599	7	$51,213	4	$46,992	23
24-27 Yrs	$47,158	5	$48,921	3	$52,372	6	$49,770	14
28 or more Yrs	$34,521	1	$44,000	1	$56,368	3	$49,525	5
General Staff								
0-3 Yrs	$32,201	14	$27,967	41	$28,815	9	$29,012	64
4-7 Yrs	$28,981	12	$30,738	21	$30,869	8	$30,249	41
8-11 Yrs	$35,144	7	$33,365	19	$35,975	8	$34,346	34
12-15 Yrs	$35,610	4	$32,950	7	$37,376	8	$35,373	19
16-19 Yrs	$38,081	10	$39,640	5	$44,132	4	$39,765	19
20-23 Yrs	$44,547	5	$43,714	3	$41,691	8	$42,963	16
24-27 Yrs	$37,931	4	$44,184	9	$49,139	8	$44,880	21
28 or more Yrs	$44,456	2	$42,571	3	$45,356	4	$44,227	9
Overall								
0-3 Yrs	$33,949	23	$35,279	72	$31,207	16	$34,416	111
4-7 Yrs	$35,866	23	$34,959	38	$35,389	18	$35,321	79
8-11 Yrs	$36,021	15	$38,594	35	$39,851	17	$38,337	67
12-15 Yrs	$35,418	8	$42,835	15	$42,973	15	$41,328	38
16-19 Yrs	$37,899	12	$47,758	9	$52,186	10	$45,370	31
20-23 Yrs	$45,030	17	$46,434	10	$44,865	12	$45,339	39
24-27 Yrs	$43,057	9	$45,368	12	$50,524	14	$46,836	35
28 or more Yrs	$41,144	3	$42,928	4	$50,075	7	$46,119	14

Table 6
Mean Salaries of Comparator Librarians in FY91 by Type of Work and Highest Academic Degree

Highest Academic Degree	State College Mean	State College N	University Mean	University N	Regional Mean	Regional N	Overall Mean	Overall N
Administrators								
Bachelors	-	-	-	-	-	-	-	-
Masters	$40,579	56	$45,762	118	$48,475	67	$45,312	241
Doctorate	$49,634	6	$48,432	15	$51,900	10	$49,783	31
General Staff								
Bachelors	-	-	$37,920	3	$49,234	1	$40,749	4
Masters	$35,869	70	$31,848	178	$38,113	94	$34,393	342
Doctorate	$49,134	4	$34,812	11	$42,983	8	$40,145	23
Overall								
Bachelors	-	-	$37,920	3	$49,234	1	$40,749	4
Masters	$37,962	126	$37,395	296	$42,425	161	$38,907	583
Doctorate	$49,434	10	$42,669	26	$47,937	18	$45,678	54

Table 7
Mean Salaries of Comparator Librarians in FY91 by
Type of Work and Collective Bargaining Status

Collective Bargaining Status	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
Bargaining	$40,841	11	$40,571	24	$40,571	24	$40,621	59
Nonbargaining	$41,833	53	$47,273	109	$52,701	53	$47,270	215
General Staff								
Bargaining	$40,386	25	$35,546	29	$35,546	29	$37,004	83
Nonbargaining	$34,315	51	$31,528	166	$39,980	74	$34,166	291
Overall								
Bargaining	$40,525	36	$37,822	53	$37,822	53	$38,507	142
Nonbargaining	$38,146	104	$37,769	275	$45,289	127	$39,734	506

Table 8
Mean Salaries of Comparator Librarians in FY91 by
Type of Work and Gender

Gender	State College Mean	N	University Mean	N	Regional Mean	N	Overall Mean	N
Administrators								
Men	$44,790	25	$48,513	45	$52,317	32	$48,794	102
Women	$39,657	39	$44,811	88	$46,504	45	$44,085	172
General Staff								
Men	$39,229	25	$33,744	74	$39,539	39	$36,375	138
Women	$34,882	51	$31,186	120	$38,067	65	$33,880	236
Overall								
Men	$42,010	50	$39,329	119	$45,298	71	$41,653	240
Women	$36,951	90	$36,950	208	$41,518	110	$38,182	408

- Administrators in bargaining units tended to have lower average salaries than those not represented by such units. The average salaries of those in units was 14% lower than for those not represented collectively. It should be noted that most administrators are considered management, not labor, and do not get included in collective bargaining units. Departmental chairs were most frequently included. Administrative salaries at institutions with collective bargaining may be lower because unions tend to flatten out salary distributions by emphasizing rank and time of service factors. This strategy would affect administrative salaries the most since such salaries are at the top of the range within libraries.

- General staff librarians at all but the Regional comparator institutions benefitted from inclusion in collective bargaining units. Average salaries of those in units were 18% higher at State Colleges and 13% higher at University comparators.

Gender

Table 8 shows the mean salaries of comparator librarians by type of work, type of comparator, and gender. The main findings were:

- Men earned higher average salaries than women in both administrative and general staff categories at all three types of comparator institutions. The average wage gap was 8%.

- The gender gap was not explainable by differences between men and women in faculty status, faculty rank, tenure status, or years of service. In virtually all comparisons between men and women with the same faculty status, rank, tenure status, or amount of service, the average salaries of men were higher. However, women at all three types of comparator institutions were significantly less likely to hold a doctoral degree than men. The chi square statistic for the sex by type of degree table was significant at the .001 level for all three types of institutions. Hence, part of the salary gap may be due to differences in the numbers of men and women librarians who hold doctoral credentials.

There was evidence that some women with doctorates fared well on salary compared to men with doctorates. Women in administrative roles who held the doctorate averaged nearly $5,700 more in salary than men with the same credentials. Yet, among staff, men with doctorates averaged over $6,000 more than similarly trained women.

Librarian Faculty Compared to Academic Faculty

Table 9 compares the average salaries of academic and librarian faculty for each rank. The source for the academic faculty was the AAUP study data collected in Fall, 1990[6].

The salary differential between academic and librarian faculty at the same rank was substantial. In general, the differential was the highest for the Universities and Regionals, and somewhat lower for the State College institutions. For instance, an academic assistant professor earned 1% more in salary than a library assistant professor at the State Colleges, but 11% more at the Universities and 9% more at the Regional institutions.

The salary differentials were even greater when the librarian salaries were converted from a 12 month to an academic year basis - to make them more comparable to the academic faculty. For instance, an academic assistant professor earned an average of 19% more at the State Colleges, 27% more at the Universities, and 26% more at the Regional institutions than a librarian with similar faculty rank.

Perceptions of Librarians Regarding Academic and Librarian Faculty Status

The survey instrument also contained a section asking the responding librarians to comment on differences between academic faculty and librarian faculty at their institution. Regarding salary, seven of the eleven schools from the State Colleges reported that librarians earned less than academic faculty of similar rank. The opinion was mixed at the Universities, with two schools reporting salaries were lower, three were undecided, and two were uncertain.

Most individuals at the State Colleges (8/10) reported no difference in the criteria for promotion and tenure between librarian and academic faculty, while nearly all those reporting for Universities (6/7) believed that criteria were different.

The criterion most often differing between academic and librarian faculty was teaching effectiveness. In many libraries, this criterion was translated into "librarianship" in the evaluation for promotion and tenure.

Only one institution reported that a formula was used to adjust salaries for the difference between the academic and calendar year contract. And, this formula was used only to accommodate the difference among librarians - not to compare to academic faculty.

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[6] American Association of University Professors. The Annual Report on the Economic Status of the Profession 1990-91. Academe, March-April, 1991.

Table 9
Mean Salaries of Academic and Librarian Faculty in FY91 by Type of Comparator and Rank

TYPE OF COMPARATOR	ACADEMIC FULL PROF	LIBRARY FULL PROF	ACADEMIC ASSOC PROF	LIBRARY ASSOC PROF	ACADEMIC ASST PROF	LIBRARY ASST PROF
State College	$48,846	$44,958	$39,677	$40,061	$33,200	$32,791
University	$58,208	$47,389	$43,277	$40,437	$36,192	$32,082
Regional	$59,683	$54,889	$45,400	$42,506	$37,450	$33,895
Salary Differential						
State College		$3,888		($385)		$409
University		$10,819		$2,840		$4,110
Regional		$4,795		$2,894		$3,555
Converted to Academic Year						
State College	$48,846	$36,775	$39,677	$32,770	$33,200	$26,823
University	$58,208	$38,764	$43,277	$33,077	$36,192	$26,243
Regional	$59,683	$44,899	$45,400	$34,770	$37,450	$27,726
Differential after Conversion						
State College		$12,071		$6,907		$6,377
University		$19,444		$10,200		$9,949
Regional		$14,785		$10,630		$9,724

Note: A factor of .818 was used to convert 12 month salaries into academic year salaries.

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To summarize, based on initial data analyses, the key factors linked to librarian salaries were the librarian's type of institution, entry into administrative positions, advanced rank, tenure, and completion of a doctoral degree. Gender and inclusion in a collective bargaining unit were also factors in salary, for at least some types of librarians.

Less influential in librarian salaries were faculty status, years of service, and type of functional role occupied within the library (for staff librarians).

Policy Implications

Two key questions are raised by this study: 1) Does faculty status mean the same thing for academics and librarians?; and 2) How should salaries for librarians be benchmarked?

Meaning of Faculty Status

The first question has no easy answer but can be viewed from both an idealistic and a data perspective. The idealistic intent in conferring faculty status must be assumed to be full extension of the status to fully qualified recipients. The status would hold the same obligations, responsibilities, and rights, and rewards for all incumbents. The incumbents would hold the same tokens of admission - in terms of credentials or achievements. In practice, however, there are many instances where status is extended without prevailing rights and rewards. One need only consider the literature on discrimination based on ethnic status, gender, or age to see this point. There are also cases in academia where status is extended to those not meeting normal standards for the status, for instance, honorific degrees or trial admissions.

Whatever the original intent in extending faculty status to librarians, there are clear differences in both the outward trappings of the status and in the entree characteristics with respect to librarians and academic faculty. Salary is lower for all but a few faculty librarians and work contracts longer compared to academic faculty. On entree, not all who exercise librarianship become "faculty" but almost by definition all those who teach at the appropriate level are "faculty" in some sense. (Or are aspirants to the role, such as graduate students.) It is true that there are many types of less fully endowed faculty - for instance, adjunct faculty, non-tenure track faculty, or unranked faculty - but these are really not roles with permanence in the same sense that one can legitimately work a lifetime as a professional librarian without ever achieving a faculty status. The status is in some sense separate from the role of librarian, but not of faculty.

On the side of similarity, progression in faculty roles for both academics and librarians is similar. Changes in rank and tenure come with years of service and signal changes in rewards or salaries. The review process is similar for promotion and tenure, with only minor differences in the actual criteria used in evaluation.

With regard to credentialing, both academic and librarian faculty generally hold the terminal degree in their respective fields. In the case of librarians, the degree is the M.L.S. There are doctoral programs in library science, but holding a doctorate does not yet appear to be the standard for credentialing in the library field. Indeed, many of the librarians in the sample who held doctoral degrees held the Ph.D. rather than a D.L.S.

One way to view the differences between academic and library faculty is to consider the long history of academic faculty and the well established norms and traditions for that status. Librarian faculty are situated in an evolving role by comparison - with a less established history and tradition. It is significant that organizations of librarians have been active in trying to formalize standards for faculty status within libraries. The membership of ACRL, for instance, adopted a set of standards for faculty status for college and university librarians in 1971. It may be that the definition of faculty status for librarians will become more standardized over time as such efforts continue.

Benchmarks for Librarian Salaries

Of more pressing concern is the practical matter of how to assess the adequacy of current library salaries, for purposes of setting salary goals or formulating positions in collective bargaining negotiations.

The most common approaches to setting salary goals are market and step systems. Market systems rely upon assessing the position of an individual's salary relative to that of others in similar positions and organizations. Step systems project salary requirements based on length of acceptable service within a position or class of positions. Salaries may be supplemented by cost of living increments, merit adjustments, or equity adjustments under either basic system.

With respect to librarians, benchmark data can be used either to establish market rates or to develop step systems. A few guidelines can be given about benchmarks based on interpretation of the results of this study:

- Benchmarks should be based upon data specific to the type of institution at which the librarians are employed. Regional data alone is not accurate if a variety of institutions are included in the region.

- Salary data used in benchmarking should go beyond the currently available data on administrative title, functional role area, and years of service for professional librarians.

- Critical factors which should be considered in benchmarks include type of work, faculty rank, tenure status, and degree credentials. Most standard studies (for example, those from the ALA, ACRL, or ARL) do not include these factors in presentation of average salaries.

- The policies of one's institution should be followed in deciding whether it is appropriate to benchmark librarian faculty salaries to salaries of academic faculty at similar ranks. There is little empirical support in this study for doing so. However, in a minority of institutions, librarian salaries by policy are treated as equivalent to those of academic faculty. (This is not uncommon in institutions with long histories of collective bargaining.) Using other librarians as a point of reference rather than academic faculty in setting benchmarks removes the problem of differing contract years. The great majority of librarians, whether faculty or not, work on a 12 month basis.

Conclusions

This paper reviews the results of a study of librarian salaries at 27 institutions in June, 1991. The main findings of the study were that higher librarian salaries were most strongly associated with employment in larger, more complex institutions, administrative work roles, advanced rank, tenure, and completion of a doctoral degree. Most of the factors commonly reported in national studies of librarian salaries - functional work role, type of position, and years of service - were not as good predictors of librarian salaries at academic institutions. A secondary finding was that faculty librarians earned significantly less than academic faculty at the same rank especially when a correction was made for the difference in terms of appointments. Gender differences in salary between men and women librarians persisted even after controlling for differences in type of position, faculty status, rank, tenure status, and years of service. One important difference was found between men and women women were less likely to hold a doctoral degree. Recommendations offered for benchmarking library salaries were to present comparisons for similar types of institutions, to include information on faculty attributes and credentialing, and to follow the policies of one's institution in using librarian or academic faculty salaries as points of reference for comparison.

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Remarks for Northeast Association for Institutional Research
General Session 9:00 a.m.
November 18, 1991
By Elizabeth G. Cook

Marketing Higher Education in a Changing Society:
Reframing our Questions for the 1990's.

Thank you for inviting me to be your keynote speaker.
I do consider it an honor to share with you my thoughts this morning.

Before I more into my more formal comments, I want to acknowledge your commitment to learning that has you here. You - who earn your living on the grounds of institutions committed to higher learning - are also acknowledging your need to learn by being here. I think that fact is important to note. You'll note as I speak, references, to people I've listened to lately. I make it my business to attend as many conferences and presentations as my schedule allows. It helps me in understanding the communications environment we are all enmeshed in.

The fact that you have taken time to come together to learn - to check your special interests at the door - As my dear friend Eileen Brown, President of Cambridge College says so honestly, "None of us knows what all of us know." Please feel free to have exchange with me. We'll have a time for questions after I present.

During the past few months, since accepting Mike's invitation to speak to you today, I've been thinking a lot about education and change. My topic is Marketing Higher Education in a Changing Society, but the truth is we need to talk about Education in a Changing World.

All we have to do is review some of the events that have taken place during the past year, to experience the magnitude of recent changes: the Gulf War, the toppling of Communist regimes, the Arab -Israeli peace conference. These international events have already had an impact on our society: and education is feeling the reverberations of these and other events.

So my first suggestion is that in thinking about higher education here in the United States, we need to look beyond our borders, as well as inside them, for the forces and issues that are shaping us.

The second inference from my topic - that we should reframe our questions for the 1990's - should probably read instead, "The Next Century." I recently heard Dan Rather speak at the Boston Chamber of Commerce and he said the 21st century is already here. He remarked that centuries are defined by key events and the 20th century ended with the collapse of Communism.

As we gather here this morning, thinking about the future of higher education, we need to acknowledge we are facing tremendous change. As a presenter at a recent Ad Club seminar noted, the Trouble with the future is it is no longer the way it used to be. Just as we need to have a wide view, we also must think about our actions long term. The 21st century is here.

We live in a very exciting time... and we face daunting challenges. From the crisis of AIDS to the preservation of our environment. Our world is increasingly interdependent, we need skills to compete in a global, information-based economy. These matters alone demand our undivided attention.

All this at a time when education is facing its own set of challenges. I'll name just three:

First, the population is shifting.

- By the year 2000, the number of people in the 18 to 34 age group will have decreased 11%

  - Your primary audience is shrinking.

- America is aging. The median age of our population was 28 in 1970 and is projected to be 41 by the year 2030.

  - This audience needs to be addressed.

Along with the age shifts, we are becoming a multi-cultural society.

- A Boston Globe series of articles on higher education that ran this Fall reported 51% of MIT's entering class is "minority" - either American minorities or foreign students. Suffice to say American white students are now the minority at MIT this Fall.

Second challenge. There are rising expectations for education.

- What is education supposed to do? Everything.

There was a recent Boston Globe feature article with exactly that title. A cross section of people - parent, deans, students, legislators, teachers commented:

- "Schools should help you function in society and develop a sense of self."

  A translation: Be a well-rounded happy person

- "Education should teach students to think independently and learn for themselves."

  A translation: Be wise and practice safe sex, avoid the evils of alcohol.

- "Education should prepare kids to have flexibility and thinking skills and be able to compete."

  A translation: Be eminently employable.

- The crucial link between higher education and the world of work is not working. I heard a very significant number at a conference the other day. American companies are investing 2.6 times more money abroad than in the U.S. The main reason - work force. Motorola just opened a plant in Japan. U.S. company facilities dot the landscape in Germany.

Brings me to the third challenge we face, we are questioning the educational process itself.

- There are questions about the merits of testing.
  - What do the SATs mean in the admissions process?
  - Should one-minute quizzes be the order of the day?

- There is the great debate on curriculum.
  - Should we focus on a Great Books course of study or one that is multi-cultural and representative of society?

- There have been scandals and disillusionment connected with the university - questions of plagiarism, mismanagement of government funds.
  - Are the ethics of the academy as they should be?

These challenges lie in the face of shrinking resources and economic contraction.

It is enough to make one want to hide. Pull the covers over our heads. However, we need to move past blaming any individual or institution for the fix we find ourselves in.

I recently heard Boston Public Schools new Superintendent of Schools - Lois Harrison-Jones - address the Chamber of Commerce. She has a wonderful warm and straightforward style and she invited the business community to move past blame as she recounted the evil cycle that has Businesses blame Colleges, Colleges blame the High Schools, High Schools blame the Middle Schools, Middle Schools blame the Elementary Schools and the Elementary Schools blame the Home, especially the mother - and what do you think the mother says? "It's the father's fault."

Obviously, this is a no-win way to think.

What do I recommend?

Think like a marketer.

You may think this concept does not apply to higher education. Before you give that recommendation a judgement, I'd like to mention that I worked in the non-profit world - of arts administration and public education before I got my MBA and became a business person. I do understand business terms and practices are not the panacea for all ills.

However, let me point out what I see as benefits of thinking like a marketer.

- it will shift the way you look at the problems you face,
- it will give you a way to organize your thinking and effect change,
- it will focus your attention on your customers; it will get you into the minds of your consumers,
- most importantly, it will provide you with a platform for leadership.

Thinking like a marketer will assist you in keeping the customers you have and gaining new customers.

In the original letter of invitation to join you this morning, Mike described your profession as a strange but charming hybrid, what in medieval times might have been a cross between soothsayer and court jester. I suggest thinking like a marketer is an appropriate descriptor for the 21st century.

What does a marketer do?

A marketer constantly puts himself or herself in the customers shoes. A marketer listens and responds. A marketer is an integrator of information and the proposer of programs. The marketer is the manager of change.

When I went to business school in the late 1970's, the marketing function was defined by the 4 P's: Price, Product, Place, Promotion.

Not so today. Marketing is not a function. It is a way of doing business. Marketing is an on-going process, long-term, based on exchanges with individual customers over time. It is not a role of manipulation but genuine customer involvement.

The November 11th issue of Business Week - the cover story - outlined the job of marketer in the '90's.

- The marketer builds relationships
- The marketer gives the customer the facts
- The marketer offers products that perform
- The marketer avoids unrealistic pricing
- The marketer gives the consumer more than he or she expects

Schools are being criticized for being out of touch. A Fortune article, published in July of this year, talked about how business schools are not giving MBA's the skills employees need. They are trained in functional specialties but not in leading, creating, communicating, qualities that have been identified as critical business skills.

The article went on to describe top schools such as Wharton, Chicago, Columbia doing research with students - and then modifying their curriculum to suit students and business needs - their customers.

I heard Tom Gerrity, Dean of the Wharton School, speak this month. He was forceful and eloquent on the need for change in higher education. That managing change, the skills of surviving and coping, the need for leadership is key.

He said, "We are no longer a functional world, with disciplines, like stationary targets for examination. We need to manage new alliances."

Thinking like a marketer takes you beyond established functions.

Let me give you an example.

A Wall Street Journal front page story this summer outlined Regis College in Denver, a 114 year-old Jesuit school on the brink of financial ruin. Father Clarke, the president, recognized that he was in a service industry and customer service became his watchword. As he thought and acted like a marketer, there were staff changes. Instructors were brought in with at least a Master's degree that taught what they did in real life. There were requirement changes, he set up an accelerated degree program for adult students. There were location changes. He set up satellite campuses. There are new ways of gathering information: focus groups and surveys with students and relationships with area businesses. Academic standards are not watered down and there is a clarity that education is a business, with a bottom line and students need to be treated as customers. Gone are the days "we'll tell you what you need and you'll take it."

Closer to home it has been exciting to watch Linda Wilson of Radcliffe use her research background to solicit advice and opinions from students, alumnae, colleagues and craft a long range plan for Radcliffe that includes a focus on public policy and women. In marketing we would call that a neglected niche. I think it is a brilliant move for Radcliffe.

As Madeline Kunin, the former governor of Vermont commented: "The new mission Linda Wilson is defining for Radcliffe really fills a vacuum."

Who are your customers?

- Parents
- Prospective students
- Students - customers already have, including those taking a year or two off.
- Graduates
- Business community

Thinking like a marketer, you would put yourself in the shoes of parents (How many of you are in fact parents of students in college? Raise hands)

You know that parents are concerned about their investment long-term. That they are motivated by pride, the network their child is joining.

Parents are the gatekeepers. What can you do to keep them happy, to give them value, to keep them involved? I mean long term - not only freshmen year. Invite them to alumni events? Open special seminars for them? Have alumni relate to parents aggressively? What about parents for whom English is a second language? If you were thinking like a marketer what could you do for them?

Thinking like a marketer means listening and responding.

Sounds simple, but entails risk.
Are we willing to hear what we may not want to hear?
Move beyond our comfort zone to try something new?

We are talking about serving customers - listening to them - getting them involved. Feedback is vital. It is a Reality Check -- Are you giving them what they want?

The Advertising Club of Greater Boston sponsors a program - The Advertising/Opportunities Program - its purpose: to bring more minorities into our business. City-wide, students compete for 30 seats in a semester long after school program to learn about the advertising business two afternoons a week. These 30 High School juniors and seniors compete to get eleven paid summer internships in advertising agencies.

In getting ready to talk to you I did a focus group with some of these students - Black, Hispanic, Asian young men and women.

I asked them what they think about - as a customer - when they look at colleges:

- They looked to see what the school is famous for - in other words the marketing position of the school - "a city college with a great science department," "a country campus with great art studios."

- They looked to see where the graduates worked after graduation; what kind of jobs they had. Were there any famous graduates?

- They were interested in the courses, required curriculum and class size.

- They looked to see how many minority students were enrolled; how many people like themselves.

- Of course, they wanted to know how much it all costs.

Asked how colleges should reach them? They all brought materials to show me what they liked and didn't like.

- Some comments about brochures - They really seemed to read many of them, although they were very concerned about stopping the flood of mail when they were no longer interested. They worried about the trees.

They checked the brochures for honesty - especially in relation to minorities. If the copy said 3% minority, and their was a black or Asian face on every page, they were immediately turned off.

- They were concerned about the honesty in regards to money available - the truth about available scholarships; they wanted one stop shopping; a clear process in regards to money. Several students mentioned financial forms to help their parents - many of whom have English as a second language.

- When asked what helped them the most when choosing a college, they said one-on-one conversations with knowledgeable, warm people was best, followed by collateral material with clear and honest information.

Focus groups, like the one I held with the Advertising Opportunities students, is a fairly traditional way of gathering information.

What about thinking like a marketer and using new technologies?

In January '91 issue of the Harvard Business Review, Regis McKenna, chairman of his own marketing consulting firm and guru to some of America's leading hi-tech companies, published an article entitled: Marketing is Everything, Everything is Marketing. Here he predicts that the 1990's belongs to the customer; he asserts that we are witnessing the emergence of a new marketing paradigm - not a "do more" or "busy bee" marketing that turns up the volume on the sales spiel - but a knowledge and experience - based marketing approach based on the willingness to listen and respond to the individual customers needs. He adds, "This new marketing paradigm is driven by the enormous power and spread of technology."

I saw a great example of this way of thinking the other day at a seminar entitled The New Media.

A Do-It-Yourself Home building chain had devised an interactive video support system for use by salespeople in helping customers. A customer - you or me - comes into the store and inquires about building a deck on his or her home. The salesperson goes to point of purchase video display unit - with a mouse - designed the deck - height, width, type of railing, type of wood you request - you can see it all in 3-D immediately. When it is correct to your specifications, a command give the price - if that is too high - it can be modified (change the size, type of wood) - then you get a print out of all you need for that deck - order goes to warehouse. That system designed with customer - first in mind: 1) made product accessible to customer, 2) got costs out in open soon, 3) salesperson worked the computer, staff used to best advantage, to serve customer.

Could your prospective customers benefit from an interactive system that spelled out a curriculum and costs?

Should you be using floppy disks to communicate with graduates or those who are taking time off? Do you have 800 numbers to reduce cost for prospects?

How else can you use new technologies?

Thinking like a marketer you will constantly ask questions and respond accordingly. Have you ever surveyed the customers you chose who didn't choose you? The students you accept that go elsewhere. There is something to learn there I'm sure.

Can you demystify the admissions process? What are the real constraints of timing? Can you look at the turnaround time and serve prospective students with a quicker turnaround?

What could you do for graduates? With the trends towards life long learning, how can you keep students tied to you and your college and university? How can you tie back graduates of your school professionally, to their department? Send out reading lists. Word of mouth matters. Look for what makes a difference and differentiates you.

While you are looking for opportunities, look for problems too: I am currently enrolled in a local college one evening a week - studying art. Adult education is an important source of income at this institution. Class starts at 6:30. Last week I was late and arrived at 7:00. All the doors were locked. I had to find the campus police to get in. Someone, thinking like a marketer, would change that policy immediately. Adult education students are generally working and may be late.

Now what? You are thinking like a marketer - listening and responding - focused on the customer.

Earlier I mentioned a benefit of thinking like a marketer, provides you with a platform for leadership.

Part of being a leader is recognizing you as an individual have the power to make a difference. You are the eyes and ears in the President's office.

Take a risk. Look beyond your function.

Work to create a road map, a marketing plan, in partnership with the people who value your institution.

I received my MBA from Simmons in 1977. Whenever someone from that program calls me, I take the call. I'm happy to contribute my time and energies to the school and the students and graduates.

Why? I feel an important part of the Simmons network. I'm involved and included.

You might not feel like you have enough power to effect change, that the "institution" should do something.

But it really is the individual that can make a difference.

Warren Bennis - in his book - On Being A Leader quotes Mathilde Krim, the scientist who has led the fight against AIDS. She says, "I have little tolerance for institutional restraints. Institutions should serve people, but unfortunately its often the other way around. People give their allegiance to an institution and they become prisoners of habits, practices and rules that make them ultimately ineffectual."

The buzz word in marketing these days is relationship marketing.

Different kinds of products require different kinds of relationships to prompt buying behavior and customer loyalty.

I'd like to leave you with the recommendation this morning that thinking like a marketer will benefit you because it will shift the way you think about higher education. The 1990's and 21st century are about customer service, value and satisfaction. If you think like a marketer you will do as Peter Drucker has said: "It is more than doing things right, it is doing the right things."

I'd be happy to take questions or comments.

NEAIR Conference: Presentation to Panel Session:

"Fantasies" and Forecasts for the Year 2010:

Tuesday 19 November 1991

Peter Davies
November 1991
The Staff College

My initial reaction to the title of this panel session was one of skepticism. In my last year at high school I can remember reading predictions of futurologists which suggested that by the year 1991 we would only need to work for 25 hours a week and for 30 weeks in the year and that manual work would be performed entirely by robots. I don't know about this side of the Atlantic but I can assure you that I have not noticed much progress in that direction from where I live and work! Yet, if in 1988 we had been asked to forecast what the world would look like in 1991, who amongst us could possibly have predicted the events in eastern Europe, the Gulf and elsewhere? So perhaps our fantasies might become realities after all.

As a marketer, when asked to imagine the world in 2010 I instinctively turn to some of the more or less predictable demographic trends, viz:

1. The stereotype "typical" family of working man, home-maker woman and two children (already a small minority in both our nations) will no longer impinge to any extent on national consciousness as reflected in advertising and other media.

2. There will be a continued diminution in the proportion of workforce to retired populations. In 2010 there will be only two people in work for every one retired person.

3. In the US minorities will have become the majority, and with that there will be an increased influence of Hispanic language and culture. In the UK whilst not a majority, minority populations will be more assertive and influential. A feature of this will be the much higher profile of Islamic religion and culture, which will also be predominant in south eastern Europe.

4. Information technology and electronic media will be even more pervasive. They will also be more user-friendly, allowing voice input and multi-media output as standard features. There will be widespread use of virtual reality simulators.

5. Work will have polarized still further between low skill and high skill occupations, with little in between. Low skill occupations will include a significant number of part-time and casual jobs. High skill occupations will require ability standards at least of higher education entry level.

6. From my point of view the most significant demographic statistic concerning the year 2010 is that I will be 63 years old!

Against this background my fantasies are:

* I am a rather distinguished looking 63 year old, possessing the body of a 62 year old!

* Society in general, and higher education in particular, have responded imaginatively to the challenges which they have faced.

* Access to higher education has been improved, bringing with it better economic performance which in turn has enabled adequate funding to be secured. In the UK student financial aid is now largely institutionally directed.

* UK has become a genuinely plural society. The personnel profile of our colleges mirrors this. 50% of college senior administrators are female. Some 15% are from minorities, including a number of prominent members of the Islamic faith.

* HE institutions in the US and the UK have absorbed change within a framework of cultural tolerance and respect for learning. Skills levels have been improved and HE has made a major contribution to initiatives concerning crime prevention and rehabilitation. The prison population in both countries has been substantially reduced.

* The HE curriculum has become increasingly internationalised. Eastern Europe has recovered and advanced economically. Colleges in Eastern Europe have been heavily influenced by US models of administration and institutional research.

* In HE reduced unit costs have helped to fund improved access via the continued productive application of information technology to learning and administration. Faculty are now seen as 'managers of the learning process'. Almost all students are enroled on tailor-made programmes which make substantial use of virtual reality simulation.

* In our colleges extensive use of on-line systems provides high quality management information. There is extensive use of multivariate analyses to focus managerial action on things which really matter.

* My own institution is still training college administrators, but now makes extensive use of virtual reality simulators designed to develop and assess on the job competence.

* I am no longer in paid employment, having retired in the year 2002 at the age of 55. I keep active, however. Like many of my colleagues of the same age I am heavily involved in voluntary work in the community. I teach marketing at the University of the Third Age, and for one day a week provide a free taxi service for school children and old people.

* You may also be interested to know that in 2010 I am a resident of the United States - the United States of Europe, a harmonious and prosperous confederation which has built on national strengths. The French are our chefs, the Germans run our highly efficient railroads, the Italians are our lovers and romantics, the Dutch provide our liberal and tolerant police force, the Greeks are our philosophers and the British are our.....administrators.

Now to my forecasts for 2010. These present a rather more sceptical view. Others might see them as cynical, or realistic, depending on their point of view:

* Society and HE has attempted to respond but has not been able to do so to the extent of the challenges which they have had to face.

* Access to HE has improved in the UK but within limits. Funding issues on both sides of the Atlantic are never properly resolved despite the introduction of institutionally directed financial aid in the UK. Our respective intelligentsias believe that standards have fallen and look back to the 1980s as a golden age of academic excellence.

* UK colleges still do not reflect the society which they purport to serve. Although there are many more female senior college administrators, there are still few role models for Afro-Caribbeans and for Asians of the Islamic faith.

* There are major tensions between the 'protestant liberal' educational values of UK HE and the aspirations of Islam. As a result, a number of private Islamic HE institutions have been established.

* Both our societies have a major problem with an alienated under-class competing for too few de-skilled jobs and without the qualifications to aspire to better paid occupations. There are new social problems connected with young people so hooked on virtual reality simulators that they can no longer tell the difference between the real and the electronically simulated worlds.

* Strides have been made in both our countries in stabilising and reducing unit costs in HE via the application of information technology to learning and administration. However, there is still a substantial presence for traditional approaches which were familiar 20 years ago. The gains in better quality MIS and in the imaginative application of multivariate analyses have been offset to a large extent by losses in efficiency as a result of information overload. Most senior college administrators

receive a detailed daily report giving the latest readings from over a 100 different performance indicators. In the UK colleges are still deficient in market research and do not sufficiently understand their non-matriculant markets.

* My own institution now operates on a totally self-financing basis. We have started to train administrators in other public and private sector organisations as well as in HE. Although we have increased our range of computer-related training there is still substantial demand for more traditional approaches. Not all senior college administrators are happy with having their competence (or lack of it) subjected to practice and assessment using virtual reality simulators! The Staff College's most popular course is one with the same title and content as in 1991 - 'Interpersonal Skills'. Our second most popular course is 'Stress Management'.

* Myself? I'm still working. When I got to the age of 54 they put the retirement age back up again to 65 as there were too few workers to support the retired population in the manner to which it had become accustomed.

* And Europe? Well, confederation did not turn out to be all that it was cracked up to be. We did not build on our national strengths. As a result we have ended up with the French as our police force, the Germans as our chefs, the Greeks running our railroads, the Dutch as our philosophers, the Italians as our administrators and the British.....as the lovers. This is good news for us Brits but pretty tough on the rest of Europe!

"Fantasies and Forecasts for the Year 2010"
NEAIR Panel Remarks

Sherry H. Penney
Chancellor, University of Massachusetts, Boston

What a rare opportunity: a chance to explore a wish list. Wishes tend to remain wishes because change is slow in academe and real reform is difficult to achieve. It has been said that Oxford was famous for accomplishing the reforms of the 18th Century by the 19th.

About a year ago, I gave a speech in Washington, D.C. at a meeting of women presidents. I described an institution of the future which would be responsive to the needs of women. I made three major points at that time, points I will repeat and expand upon today.

- First: I envisioned an institution which, in its faculty, administration and board of trustees, reflected its student body. That obviously means that institutions of the future having more women and members of minority groups represented in the faculty, administration and trustee boards.

- Second: I talked about a difference in the curriculum and the way courses are taught to ensure that an institution was more responsive to the needs, again, of all students.

- Third: I talked about breaking down departmental barriers. I was even so rash as to say that perhaps we should eliminate departments in order to achieve a curriculum more sensitive to our changing society and the needs of students.

This topic -- dealing with fantasies and forecasts in higher education -- is one that I have given some thought to since that speech last December in Washington. I am glad it's being discussed today because we must think long and hard about the changes that should take place on our campuses to meet immediate and future challenges.

However, before I reveal to you my fantasies, I should place them in context. Here, in brief, are my views of the future, of what the year 2010 might be like. What I have done with my crystal ball is to ground its vision of the future on current trends as I understand them. Needless to say, current trends, when extrapolated, lead me to a pessimistic assessment of what the future holds for us:

- Economic boundaries will replace national boundaries in many instances. The world will be divided into super trading regions. -- Europe, North and South America, the Pacific Rim. Diplomacy and internal politics largely will be shaped by economic realities. Warfare, usually involving religious and ethnic animosities, will be small scale and sporadic.

Trade wars, involving such issues as tariffs, access to vast common markets, dumping charges and the convertibility of both hard and soft currencies will replace the warfare of the 20th Century. Environmental problems will loom large and create enormous frictions between industrial advanced nations and those less advanced.

• Elementary and secondary education in the U.S. may fall farther and farther behind the excellent systems in Japan and the European Community. We will possess a visually sophisticated, TV--addicted population whose members, however, will be considered more and more illiterate, particularly in science and technology. Higher education training and research in science and math will find more fertile ground for growth and the pursuit of excellence beyond our national borders. In other words, we may have lost our commanding lead in science.

The continuing decline in K through 12 education will pose enormous burdens on higher education in America in terms of remediation and support. We might perhaps be forced to institute national service for high school graduates and dropouts that includes a hefty educational component as a last resort to train and educate our young so that they can compete on an equal footing with the Japanese and the Germans in the world marketplace of knowledge and ideas.

• Public higher education, more and more, will have to look to private and corporate sources for financial support so that it remains affordable and accessible to the economically disadvantaged. Only a handful of states will be willing to underwrite their public institutions as completely as they once did.

Student bodies will be, in make up and in terms of their intellectual demands, far different than those of today. Although more students than ever will desire a college education, fewer students may be able to attend college because of the shortage of financial aid funds. By then, Congress may well have passed legislation for national college entrance exams as a way for the federal government to monitor K-12 education in all of the states, and as a way to limit access higher education only to the best and the brightest.

• Colleges and universities will have adopted new structures. Non academic departments will be "privatized," so that athletics, health services, maintenance of the physical plant, and other support services will be staffed by "outsiders." Many campuses will run extremely lean -- no athletics, no health services, no academic safety nets for students.

Even the most prestigious of our elite institutions will offer less, even their catalogs. Many colleges will by then have made the difficult choice of cutting back on faculty research and scholarship to concentrate meager resources on teaching and training.

Academic departments will face rigorous examination by trustees and others to determine their teaching and research productivity. State legislatures may restrict the

autonomy of their public higher education systems and subject colleges and universities to much more legislative oversight. Politicians will demand excessive accountability. I fear that even the theory and practice of tenure will erode because taxpayers will believe it is too expensive in an era of scarce resources to give lifetime employment contracts to "state workers."

If I tend to be pessimistic in my view of higher education in the year 2050, you must realize that I work in a state that has been hard hit by the recession... that I work in a state where public education at all levels is starved for money and for public support... and that my university has dealt with ten budget cuts in the last three and a half years, I tend, at times, to see the future through a glass darkly.

Because of intense budget pressures, those of us in public higher education don't have the kind of time we once had to debate curriculum and structures over a long period of time before instituting changes. So I propose that just a few institutions in the country act as guinea pigs and try major restructuring and radical change, and then give the rest of us the information they have uncovered.

Here is what I would like to see happen:

One -- I believe that we need to re-look at our curriculum. In no sense am I asking to throw out the liberal arts. But clearly, we are living in a society which has changed so radically in the last ten to twenty years that any curriculum must reflect the multicultural, diverse society in which we will live.

Our courses, therefore, must have more emphasis on the international scene--on global awareness. Our curricula must respond to the technological information society that surrounds us. It seems to me that the old idea of a "core" must be totally re-thought and probably replaced by something radically different from what we now have.

Two -- How we teach must be re-examined. In my institution of the future, I think we will see much, much less lecturing where the professor stands up and fills the student's head with knowledge. Instead, we will see much more of what I call a collaborative learning environment, where professors and students together are learning and exploring a subject.

Perhaps I won't ask for the abolishment of departments, but I do think we need to find ways to break down departmental barriers. A suggestion actually made by a faculty member at my own university is that every professor would have a departmental base, but would also have another intellectual base in the university.

In other words, perhaps I might be a history professor, but I would also have a joint appointment in teacher education. Someone else might be a history professor with a joint appointment in black studies. A sociology professor might have a joint appointment in criminal justice, which at UMass/Boston is a professional program. The

aim here is to break down the barriers that divide departments and disciplines, to get our faculty organized in new ways while we revamp the curriculum.

Three -- And for the institutional researchers in the audience, at my ideal institution there would be much better student follow-up studies than we currently have. For urban institutions like mine I know it is particularly difficult to find out what students are doing five years after -- let alone even the first year after graduation.

But clearly we need better feedback on what students do with their education as we implement curriculum reform, create different learning environments and break down departmental walls.

Four -- I would hope that our institutions in the future will return to an era of more stability; that they will continue to have autonomy combined with accountability.

Five -- Today we are operating in an anti-intellectual phase. Institutions throughout the U.S. are being beat up. Americans seem to take pleasure in watching the ivory tower fight over indirect costs and athletic scholarships. I hope this stage will pass and that our citizens will recognize the value of a university.

Six -- In this new stable and much appreciated university structure, I hope we are successful in breaking down the rigid divisions between administrators and faculty. As I already have suggested, we must try to break them down among separate faculties. I would hope that most administrators would continue to teach and that we would find ways so that administrators don't have to lose their academic base.

What happens now is that if you leave the faculty to become an administrator, it is very difficult to return to your department because you are so far removed from your teaching and research base. Having permanent deans who go on for ten to twenty years isn't good for either the deans or their institutions. So we need to find ways for administrators to continue to play a faculty role.

Our structures would better reflect our student bodies. Thus I hope that there will be more women and members of minority groups in the tenured faculty ranks, the chair ranks, the dean ranks, the administrative ranks, and absolutely on the governing boards. This change is one that must be made sooner rather than later.

Slowly, we have made some progress here, but when women presidents of higher education institutions still number only something like 10% of all the presidencies in the country, and when the percentage of minority presidents is even lower, we have a major problem that must be fixed.

In conclusion, let me say that my ideal institution will see major structural changes in the way it is organized. There also will be major internal changes that have to do with curriculum and working with students.

One word to my audience: As directors of institutional research, you are, I think, too often drawn and pulled in too many directions. You deal with a great many reporting requirements that are not of your own making: federal reporting requirements, state reporting requirements, sometimes board of trustees reporting requirements.

I know that these can absolutely take away all of your time and energy. What I would hope in the future is that we would be able to have more of your work directed to helping the management of the institution... that we would be able to have more conversations about what managements tools faculty, administrators and college/university presidents need to do their jobs better.

I think that such assignments are, in some sense, the fun part of your work, assignments where you actually help us make those critical management decisions. But because you have so many of these other extraneous reporting requirements, I think that particular part of your jobs sometimes gets short shrift.

The ideal institution? It is possible to construct one. I am not optimistic, though that we will see it in the next decade. But what would be most exciting to me is to have some foundation underwrite with planning funds five or six representative institutions in the country -- they would include an urban university like mine, an Ivy Group institution, a major state university, a good liberal arts college and a community college -- to think through the changes they would like to institute regarding structure, curriculum, funding alternatives.

I believe the result would lead to better education for students... faculty who are more productive and happier, and probably better at their work... administrators who are not spending most of their time being frustrated, but feeling that they are actually able to make some progress... and the production of learning outcomes which would be truly more measurable than they are now.

It will take a major push of will on the part of a lot of people to achieve the ideal institution. My sense is that we would be better off doing some of these things in radical restructuring steps than the kind of piece-meal reform we now do. Because when we get through with the piecemeal reforms that take ten or twenty years to implement, it is time to start all over again.

Thank you.

Demand Driven Volunteer Institutional Research at a Small Liberal Arts University

by

Ann Preston
Kathleen Murphy
Robert Murphy
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A Panel Presentation
Northeast Association for Institutional Research
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The St. Bonaventure University Institutional Research Model

In the report by the Carnegie Foundation concerning the governance of higher education, a recommendation was made for "...colleges and universities... to convene governance convocations to consider ways more effectively to involve all members of the academic community in decision making on campus." (Peterson, 1985, p. 207)

St. Bonaventure University, a small liberal arts institution in western New York has for several years been developing a decision model whereby its academic community could maintain its Yeshiva-type governance environment. The model was specifically designed to separate the activities of MIS and IR as articulated in this paper. Although the MIS activities of the university are continuing to be institutionalized, the IR model has become fully operational.

The purposes of the SBU IR model are:

a) to provide insights into factors that affect key decisions throughout the University.

b) to facilitate planned changed through timely transitions strategies, responsibilities and structure that promote attainment of the University's mission.

c) to provide a baseline of information that will enhance a systemic understanding of the interfaces that exist through out the activities of the University.

In Appendix A note that key attributes of the model are:

a) involvement of key decisions makers,

b) involvement of the IR faculty team,

c) requirement of an action plan from the sponsor of the research project and

d) periodic monitoring of the action plan by a researcher(s) from the IR team.

As you track the flow of the model from left to right, it can be seen that key decision makers inject into the process an issue that they deem to be a perceived need in their area of responsibility. These needs will be discussed with the IR Office which is comprised of a full time administrator and a faculty member who is the Chair of the IR team consisting of faculty and staff researchers. The perceived need is then analyzed in light of:

a) demonstrated valid need that cannot be answered by present data bases,

b) research methodology is not cost prohibited,

c) project is a valid request and is within the cost structure constraints, but the priority of this project is low.

Once the project passes these screens, it is then officially accepted into the Institutional Research Program (IRP).

During Phase I of the program, the first step is to formally enter a contractual agreement with the key decision maker who voiced the perceived need. Additionally, it becomes important to identify secondary sponsors for the research project. Secondary sponsors are key decision makers who have a collateral interest in the project from which they expect to receive some insights on an issue(s) in their area of responsibility.

Once the sponsors are identified, the Chair of the IR team canvasses the university for researchers who may be interested in the project. When the interested researchers are identified, a research proposal is developed by the researchers which outlines the methodology, resource and fund requirements and timeline for the project. This proposal is submitted to the sponsor(s) whereupon final changes can be made to insure that both researchers and sponsors are in agreement. If the research takes a prolonged period of time, in the process reviews (IPRs) will occur in order to maintain contact between researchers and sponsors. These IPRs are used to provide periodic feedback to sponsors who may be able to make preliminary decisions based on initial research data or may give additional guidance to the researchers who may have developed some methodological problem.

As depicted in the model, funding for the project is primarily borne by the primary sponsor. Costs usually involve survey material, photocopying, mailings or stipend, if required. Faculty and staff who partake in Institutional Research during the Fall and Spring semesters are not given a stipend. If the project is of sufficient importance, as determined by the primary sponsor, that it needs to be conducted during the summertime, the researcher is given a stipend. The stipend is taken from a fund in the Vice President for Academic Affairs Office. If this becomes a problem, the primary sponsor and possibly the secondary sponsor, would be expected to provide the stipend.

After Phase I is completed and before dissemination of the results of the research, a preliminary review of the report is provided to the sponsor(s). This is accomplished to insure that the research did in fact address the sponsor's initial informational needs. Upon completion of this session, either additional research is conducted or the final report is written.

The purpose of the activity in the model called Review Final Report is for the IR office to discuss the findings of the study and prepare a formal presentation, either written or oral, to the executive body of the university and the other members of the IR team. At this time it should be noted that the findings/reports of the IR team are not for general publication. The data bases used are usually from institutional sources and are sensitive to public review. Therefore, only executives, standing members of the IR team and the sponsor of the project, if not an executive, receive final reports. Duplication of a report is not authorized.

As stated above, one of the purposes of IR is to facilitate planned change. With the results of the research project in hand, institutional planners and executives can now analyze the implications of this new information on the mission, strategies, institutional structure, policy and procedures, and other areas of the university that may be affected. Once these areas are analyzed, cost estimates can be generated to institute change or just as importantly, costs can be projected if the system does not incorporate the new change.

With the results in hand from the faculty IR team, added to the resource impact assessments by a task force of experts from the planning office, sponsor's operational area and other pertinent groups, the primary and, if appropriate, the secondary sponsor now has sufficient data to generate an action plan. The action plan(s) therefore is now the product of a comprehensive institutional effort whereby faculty and administrators have had an opportunity to collaborate on an institutional problem that will likely systemically ripple through the organization.

Once the information provided by the IR team becomes an integral part of the action plan collection of follow-on data to track the success of the plan, the project crosses the IR line as defined in this paper and becomes a part of the management information system of the operating (functional) area of the administrator or other sponsor. Faculty researchers may find it necessary to maintain contact with the personnel who implement the plan for the following reasons:

a) as trainers to insure that a complex analytical procedure is understood,

b) as monitors of the system to insure that parameters do not change for the plan that was influenced by the results of their research project.

In essence, maintaining validity and reliability is their focal point. If the internal or external parameters change, it may be necessary to reenter the issue in the IR program.

Implications

Rogers and Genetman (1989) state that the mere presence of IR activities on campus does not necessarily lead to the conclusion that adequate means to assess institutional effectiveness exist on campus. They continue their discussion by implying that many IR offices are either caught up in routine activities, such as data collection and submitters or externally-required reports, or although centrally organized, are still not properly resourced to conduct effective institutional research. They do call for "... further refinement of the definition of an effective institutional research office ... /that meets the... new demands for accountability and outcomes assessment." It becomes clear in their article that the authors are promoting the path that was followed by the business world as they attempted to harness MIS. This is not to say that the business world has won the battle. But they did recognize that to win the battle you need the operational warriors, not merely the support troops. In academe, the warriors are the professoriate. Yes they are extremely individualistic, but they are collegial. Yes, intuitively and historically they know that they are the core of the university, but they are not the university. Similarly, staff researchers cannot know the university because they are not the core of the university. What this study proposes to do is to help bridge the gap of these two integral parts of the university so that not only are students better served but society in general.

In reviewing the Yeshiva case, it appears that the Supreme Court understood this natural tension that exists in the place called university. I believe their point was that like a good marriage, each side needs to say its piece in order to have a healthy union. Domination by either side in the end will lose the rich growth patterns that could result from the strengths of the two parties. Are we allies or aliens? To have a healthy and fruitful union which stands the test of time the answer appears clear. However the process to attain and maintain this healthy union is not.

Review of the literature and the activities on the campuses today finds such activities as faculty senates, open forums and the unending list of ad hoc and standing committees. All are needed yet a thread of consolidated effort needs to be woven into the fabric of the university. A well thought out MIS program is crucial for the operating officers of the institution. An IR team which blends the strengths and weaknesses or the administration and faculty appears to be a viable alternative that not only takes advantages of the institution's intellectual resources but also captures the essence of university as articulated by the Supreme Court in the Yeshiva case.

To fail to take advantage of this mechanism, key decision makers continue to run the risk of not understanding the depth and breadth of their decisions. An even greater risk would be to let the spirit of the Supreme Court's ruling on Yeshiva be played out only in law classes and not in the place called university.

History and Evolution of the Model

The model of IR currently employed by SBU had its formal origins approximately a decade ago. At this time there were a few faculty members who, in interaction with the academic vice-president, began to do research on questions posed by Middle States Accrediting Agency. As these reports were made public and became a basis of discussion, faculty interest increased and a structure began to evolve.

A model was developed that had as its core a faculty member who would chair an IR Committee that would serve a number of functions: review IR proposals, coordinate IR research, help to seek out other faculty. The structure evolved that would work as follows: an executive officer would request a particular study be done to obtain information that would help that person in decision making. The Chair of IR would contact a faculty member with the necessary skills and interests to conduct the study. A meeting or meetings would be held with the requesting officer and the faculty member to become familiar with the request and to make a number of decisions: Is this study possible, does SBU have the necessary information for the research, what is the time-table for conducting the study, and does the faculty member want to do it? If the answers were "yes," the faculty member would develop a research design and strategy to complete the study. The faculty member would do this on a volunteer basis, and the executive office would cover the costs involved, if any. Upon completion of the research a meeting would be held with all concerned parties. This presents an opportunity for the faculty member to have an input into the decision making of the University, the "reward" for the faculty doing the study. If a follow-up study was needed or more information was required, it was decided at this time. If not, the report would be made "public."

This model is still evolving. As of this time, not only can executives request IR studies but Student Government and the Faculty Senate as well. All of these segments of the university have requested IR studies. Also, IR reports are being and or have been done by such administrators as the registrar, the director of career placement, the director of counseling and a number of people in student affairs. Graduate and more recently undergraduate students are being involved in with the professionals on IR reports.

Approximately 90 studies have been completed; more than a dozen more are in progress. A variety of departments have been involved: accounting, mass communication, marketing, management sciences, mathematics, sociology, psychology as well as the departments listed above.

A consequence of this model is to increase the contact among various segments of the university increasing communication and learning. Another feature of this model is opportunity to tap into a significant amount of talent, basically all employees of the university.

A Test of the Faculty/Administration Relationship

At SBU, the role of the administration in institutional research projects for decision-making is two-fold:

(1) Executives request, prioritize and support research projects for decision-making purposes. This purpose was discussed a part of the model of IR at SBU.

(2) Middle-level administration supports institutional research by providing the information needed for research. The purpose of this segment of the paper is to focus on this administrative role from the perspective of an administrator in one of the most powerful positions in terms of having information: the registrar.

Often times decisions at SBU have required research results from IR. Examples of such recent decisions include: student retention issues, freshmen program assessment, freshmen course placement and grade point average predictions and grade point averages related to students by categories, such as those living on or off campus.

It is probably an understatement to say that in the 1990s, most middle level college administrators are operating under some level of stress and heavy workload. In attempting to catch up, it can be dismaying to receive a call from an institutional researcher requesting information. Sometimes such requests take 15 minutes as they amount to running a quick computer program. However, more frequently, such requests involve the need for information that is not kept on the student computer file. That means that someone has to go through all hard copies, record the data, and input this into a data file. Time is not the only problem SBU has experienced. Incompatible computer files have also added a conversion process that took years to develop and implement.

It would be very easy for the middle level administrator to find excuses not to accommodate such requests. For example, it is commencement time, we are in the middle of registration, it is the end of the semester, or we just cannot do it.

The challenge for top level administration is to ensure that IR and effective decision making are not held up for reasons based on data requests which middle level administrators cannot accommodate for reasons such as lack of help, time or commitment. IR often cannot be conducted without the assistance of middle level administrators who hold most of the necessary data. Such departments include

admissions, the administrative computer center, financial aid, student development, bursar's and registrar's. Also, these administrators often have the ability to make suggestions to the researcher about effective ways to gather, analyze and interpret the data.

Executives must realize that for effective research to occur, the middle level administrator must see the significance of their role in the process. It is understood by considering the entire nature of a university. All energies on campus must be devoted to:

(1) Supporting what happens in the classroom, and

(2) Community commitment to the development of young adults.

When an individual is responsible for an administrative area, it is very easy to view the institution as compartmentalized and worry solely about one's own goals for the department they are responsible for, rather considering the goals for the entire institution.

If middle level administrators are committed to university-wide goals and institutional research, then middle level administrators must find creative and flexible ways to run their department so they are able to honor and implement research requests, sometimes which may be monumental tasks, but are necessary for effective executive level decision making purposes.

Faculty Contributions

As noted above, the structure of IR at SBU reflects the dynamic nature and needs of institutions of higher education. By inviting the participation of faculty as researchers, it offers flexibility in meeting institutional information needs in (1) the nature of the research undertaken and (2) the availability of theoretical and methodological expertise.

The Nature of the Research

Trends in SBU's institutional research projects reflect the social and political climate during which they were undertaken. Similarly, the academic discipline of the author matches that climate.

Search for Identity. In terms of the research undertaken, anecdotes related by Carl Wagner, who founded IR at SBU, indicate that early studies were concerned with defining the university in terms of the landscape, the buildings and the individuals who populated the campus. The earliest documented research, conducted by John Biter, a sociologist, is representative of that tendency. Biter's studies, the "Social Profile of the Class of 1961" and the "Social Profile of the Class of 1962" attempt to discern the identity of SBU students as a group. The social history of the 1960s was likewise a history of national soul-searching and self-definition.

The Me Decade. The sense of society dissipated during the 1970s as the "me decade" of the 1980s approached. By the 1980s the nature of IR research projects had joined the national social trend of focusing on the success of the individual. Typical research titles include "An Evaluation of the Subscales of New Jersey College Basic Skills Placement Test as Predictors of Overall Freshman Cumulative Index and of Freshman Grades in English, French, and Mathematics in the Incoming Cohort of Fall 1987" and "Sex Differences in High School Performance, Academic Aptitude."

Accompanying the trend toward emphasis on individual success was an emphasis on technology. Televisions were in more American homes than indoor plumbing. Cable television penetration passed the 50 percent mark. By the end of the decade 90 percent of households were expected to have personal computers, which, combined with the cable system, would permit banking, shopping and a boutique of news at the push of a button. Technophilia is reflected in SBU research as an emphasis on statistical sophistication. Nearly all of the research projects dated in the late 1980s identify in the title the statistical technique used, generally in the first few words. Examples are "Trend Analysis of the Effects of Academic Aptitudes and College Performance of the Freshman Cohorts of Fall 1981 through Fall 1985 at SBU," "Paired Comparison Analysis of Selected Reasons for Attending SBU" and "Dating of Statistical Data."

With focus on the individual a significant element in society at large and in SBU's IR, a strong contribution by faculty from the discipline of psychology might be expected. Of the documented studies completed under the auspices of IR at SBU, 84 percent were completed during the 1980s. Psychology professor Carl Wagner was listed among the authors of 45 percent of those studies.

Back to the Future. Futurists during the 1980s identified two driving forces that would persist through the 1990s. Market forces would set the social and political agendas, according to John Naisbitt. Alvin Toffler predicted reintegration of units that had become compartmentalized. Units subject to reintegration could be nations or corporate departments. The reunification of Germany illustrates both reintegration and a reaction to market forces.

Those trends are discernible in the nature of IR at SBU. Studies completed, in progress or proposed since the turn of the decade reveal an interest in market concerns, with SBU being a product that must compete in the shrinking marketplace demand for higher education. For example, "Differentiation of Prospective Students Who Attend SBU from Those Who Choose Not to Attend SBU as a Function of Their Perceptions" (1990) attempts to identify the perceived attributes of SBU that lead to a decision to purchase the product. "Examining the Relationship between Success Strategy Classes and Student Retention" (1991) attempts to identify whether success strategy classes will increase repeat sales of the product. A post-consumption satisfaction survey now in progress attempts to identify attributes of the University that might be related to participation on the part of recent graduates in recruitment or fundraising campaigns.

Integration is in evidence in the diverse disciplines from which researchers have been drawn. Faculty from management, marketing, mass communication, psychology and sociology were all on the research team for one recent project. Other projects underway see academic staff from the registrar's office and the financial aids office joining forces with faculty members from psychology and sociology to obtain the information SBU needs to have about itself.

Availability of Theoretical and Methodological Expertise Opinion, satisfaction, quality of life, marketing and image are key words in current IR requests at SBU. The structure of IR allows it to draw upon different theoretical perspectives as appropriate for requested research. Marketing and public relations theories are shaping the design of several current IR projects as outlined below.

The first two theories, MultiAttribute Utility Theory and the Theory of Reasoned Action, are normative theories in that they model the way good human judgments and decisions are or should be made. The third perspective, which identifies heuristics used in judgment and decision making, is a descriptive theory that models the way many good and bad judgments really are made.

MultiAttribute Utility Theory. MAUT states that a judgment is made as a result of assignment of probabilities or likelihoods to certain attributes of the item being judged. The attributes are evaluated based on their degree of desirability. The most attractive item would be the one providing the highest probability of the most desirable outcomes (Edwards and Newman, 1986).

For a consumer, or student, to comprehensively evaluate a product, or university, MAUT would suggest that queries on each attribute of the product must be made. At St. Bonaventure, in order to anticipate their future support to the university in multiple ways, a post-consumption satisfaction survey to be applied to graduating students asks students not to evaluate St. Bonaventure University but to evaluate each of the programs and services listed in the student handbook, the university catalog, the telephone directory. It further asks evaluation of personnel, from administrators to advisors to teachers.

Fishbein's Theory of Reasoned Action. The Theory of Reasoned Action is an extension of MAUT and of the concept of "economic man," which states that individuals are able to exercise correct judgment by basing decision on available market information. Fishbein (Ajzen and Fishbein, 1980) replaced the concept of market information with outcome beliefs. Further, he defined the item about which a judgment was being made, the attitude object, as a behavior, not as a thing. The University Image Study, piloted in the Spring 1991, applies the Fishbein theory, with limited variations.

These two points alone enhance research into why students choose to attend SBU over another institution. The research must first identify, then examine beliefs not about SBU, but about the outcomes associated with attending SBU.

Outcome beliefs that contribute to judgments are defined by the stakeholders making the choice. In constructing a survey, therefore, opinion leaders among the target market should be polled to identify the salient outcome beliefs (Denbow and Culbertson, 1985). At SBU focus groups of students were asked to identify the advantages and disadvantages associated with attending SBU. The beliefs identified by students were incorporated into a questionnaire administered to a large sample of students.

All beliefs are not created equal in terms of their contribution to the judgment made. This element of the theory indicates the use of a statistical technique, like regression analysis or a correlation coefficient, that can determine the relative weighting of a given belief (Fishbein and Ajzen, 1981).

Heuristics. The availability heuristic states the chosen product or that which is identified as best is the one that comes most readily to mind (Tversky and Kahneman, 1986). Repeated messages about the university would contribute to it's being "available" (Belch, 1982) when a decision to attend must be made. Factors of primacy and recency may enhance availability.

The representativeness heuristic refers, essentially, to the process of stereotyping. The nature of messages to a product, or university, become generalized as positive or negative. That positiveness or negativeness becomes associated with the product as a whole and ultimately affects the decision to purchase or not purchase the product (Tversky and Kahneman, 1986).

These heuristics, and a dominant methodology in mass communication, suggest a second avenue of approach to the University Image Study. A content analysis of the number, nature and media for messages about the university will indicate whether SBU is an available and whether it is, stereotypically, appealing or unappealing. Stages in such research will involve identifying the significant publics, listing the media to which each public is likely to be exposed and systematically examining that media for the number and nature of references to SBU.

Middle-aged male alumni may, for example, be identified as a key public. Media to which such men are likely exposed include their regional newspaper, television news broadcasts and a trade publication. Suppose a content analysis found SBU present only in the sports reports. The university would be a relatively "unavailable" option when male alumni sought tax shelters to which to donate. Further suppose that the sports references were generally to losses suffered by the SBU's various teams. The representativeness heuristic suggests that "loser" would become a stereotype generalized to the university as a whole.

Utility of Findings. Either the MAUT technique or the theory of reasoned action, in addition to guiding research, serve to identify attributes of SBU that are attractive and that are of high salience in decision- making processes. Sales messages can then be constructed that emphasize these attributes.

Such findings as would result from a content analysis guided by decision-making heuristic hypotheses would indicate whether public relations activities should be undertaken to gain publicity, thus increasing availability. Positive publicity directed at expanded media targets, like trade publications, might be mandated to counteract the negative stereotyping resulting from generalizations based solely upon sports reports.

Professional Development Benefits

Once individuals have received approval to pursue an IR project on behalf of SBU, the immediate goal is the specific project. "Quality Circles" are then formed to undertake this challenge/opportunity. By Quality Circles are meant voluntary groups generated to address a specific problem. According to Ouchi (1981) these "circles" constitute a future oriented problem solving approach. Participative work effort is usually expended beyond the "normal" workload expectation.

As potentially relevant/important as the research effort may be, what attracts university members to this "quality circle" of work effort that is essentially beyond their specific teaching/staff parameters of responsibilities? Their topical interest may be either content or context bound. Experiences such as teaching experience, senior class advisement, community service, university committee involvement may provide content for institutional research team (IRT) participation. In other words, IRT membership on this committee is not necessarily based upon a particular contextual statistical expertise.

Unfortunately, there appears to be an assumption that university faculty with a terminal degree possess research skills that draw heavily on their analytical and diagnostic capacities to identify problems. They are able, therefore, to gather and interpret information and recognize the implications of research results. One dissertation, however, does not an "expert" researcher make. Another seldom admitted truth, is that a Ph.D./Ed.D is not omniscient. This individual may have developed a competency to do, for example, quasi-experimental (pretest, post-test) research, but this individual may not have had any particular experience in survey research method beyond one survey research paper on the masters level. Fortunately, the importance of such a faculty member to provide valuable input to the survey format is not underestimated in this voluntary research effort. Manning and Curtis (1988) consider this participative form of management especially valuable because these "circles" cultivate both communication and cooperation.

The question now becomes what are the lessons learned from such an in-house investigative effort? The immediate gain is the base-line data and conclusions/implications drawn from such a reflective institutional effort to "know thyself." However, there are long term advantages also associated with this type of research effort as well.

Perhaps the most significant long term accomplishment of such IRTs is its give-and-take mode. While some members involvement with students will provide information suitable for survey research questions, the contextual survey learning experience will be enhanced through generating the actual survey instrument.

The most critical part of one's learning experience is "learning by doing." SBU's IR approach affords both faculty and staff the opportunities to learn about alternative research methods while they are managing project. In a sense, this represents a valuable in-house professional development tool. It is a developmental tool that is able to promote added value, both to the immediate challenge at hand and the individuals involved by expanding their research skills. This learning-by-doing mode refines a faculty's competencies for long-term career success. In addition, it provides a supportive team atmosphere since membership usually represents cross-functional efforts (eg. communication, psychology, management, statistics, sociology). All members have strengths and weaknesses. In this learning mode, strengths are shared and weaknesses, over time become competencies. Participation in IR, then, augments professional development.

Another significant residual generated through such an-house research effort is that individual staff/faculty members become more aware of university life aspects beyond the classroom door. Levels of holistic awareness of SBU's quality of life mission is enhanced and a responsiveness to students needs results in bringing such questions forward to the University's institution research effort to be ultimately researched and reported on thoroughly. "Things" have less of a tendency to be dropped and initiative is now taken to solve problems as opposed to an "it's not my problem" mentality. This involvement is one of the keys to our University's ability to change and ultimately adapt to current educational needs. After all, as Bennis (1989) has stated and we at Bonaventure wish to practice: "the true measure of any society is not what it knows, but what it does with what it knows" (p. 143.) This model serves to professionally empower its participants. This model provides both short term and long term insights into our efforts to fulfill our mission statement.

This model works.

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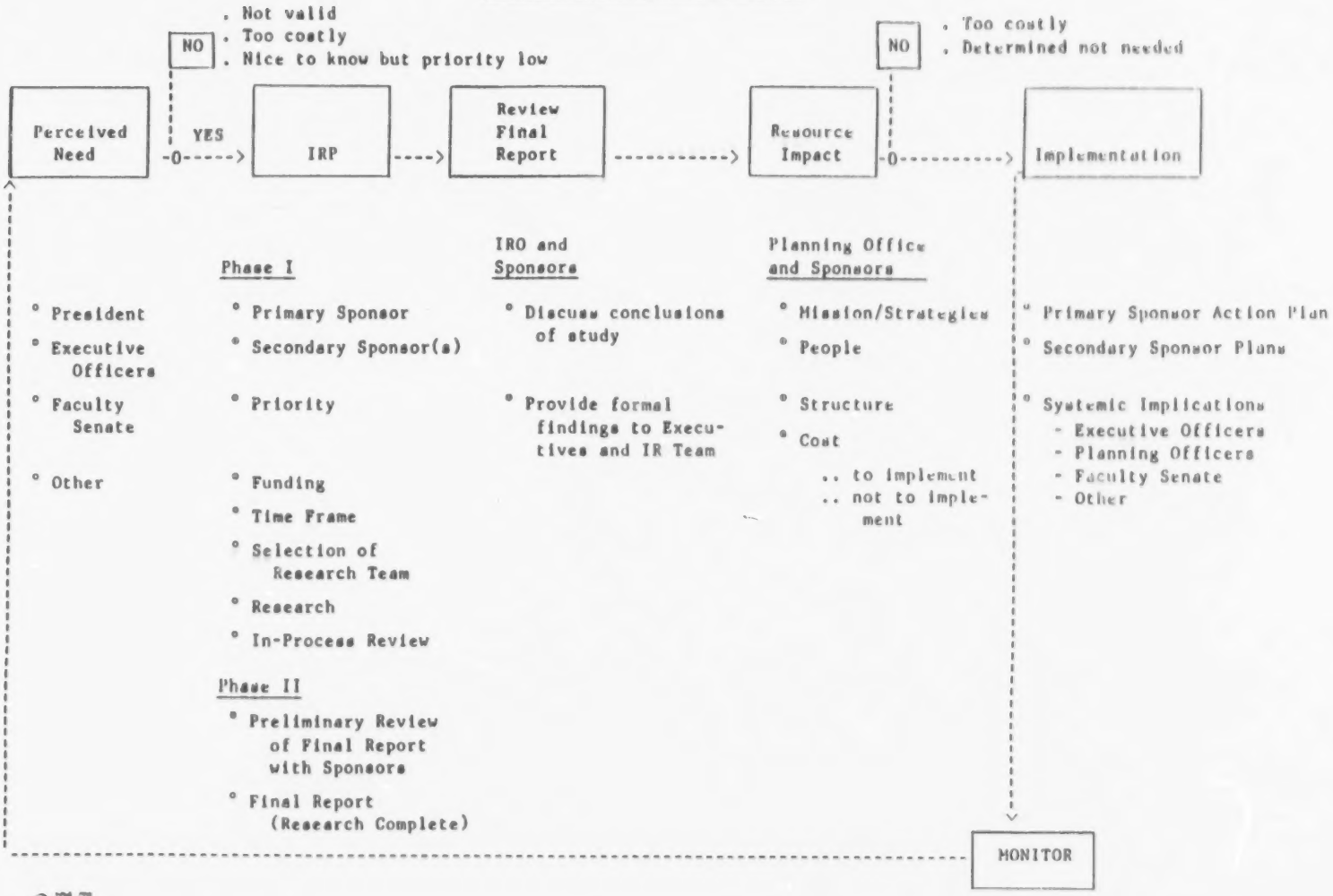
Appendix A

INSTITUTIONAL RESEARCH PROCESS



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